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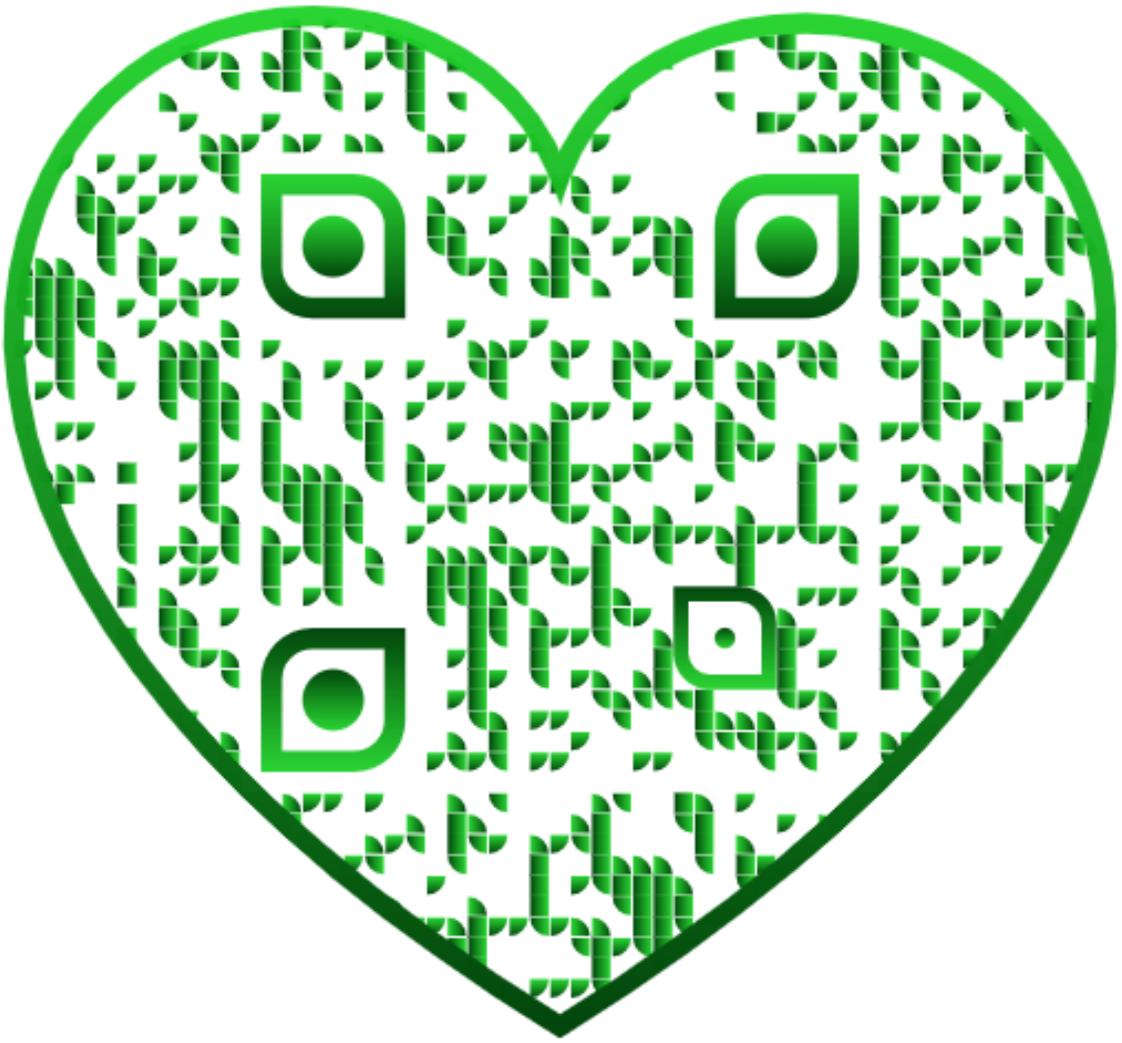

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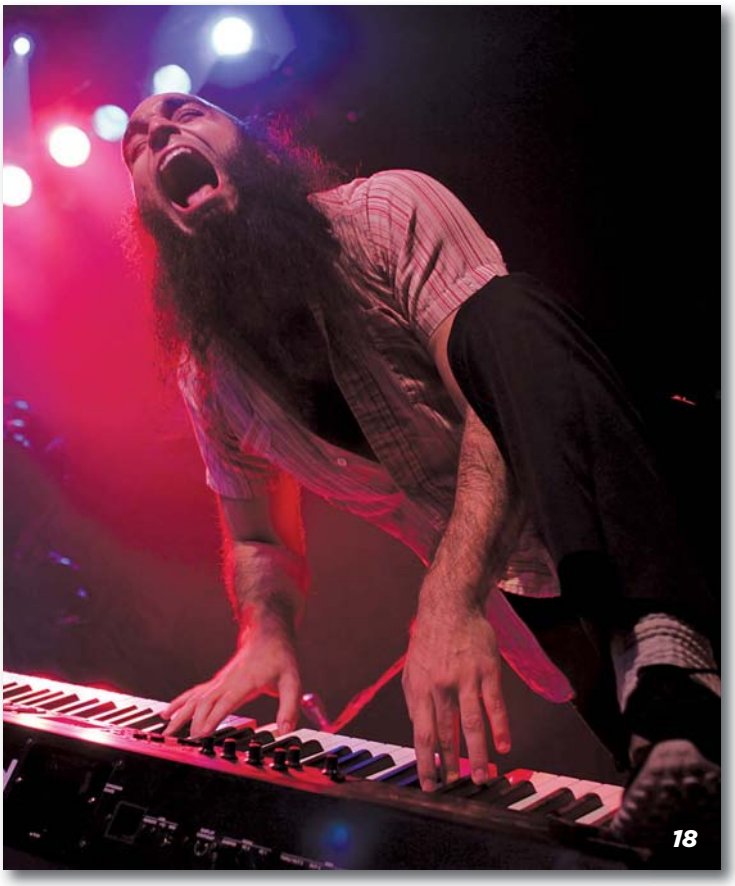

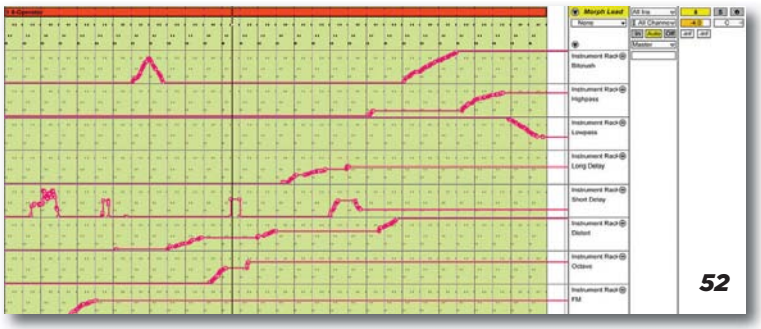

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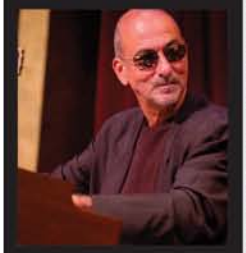

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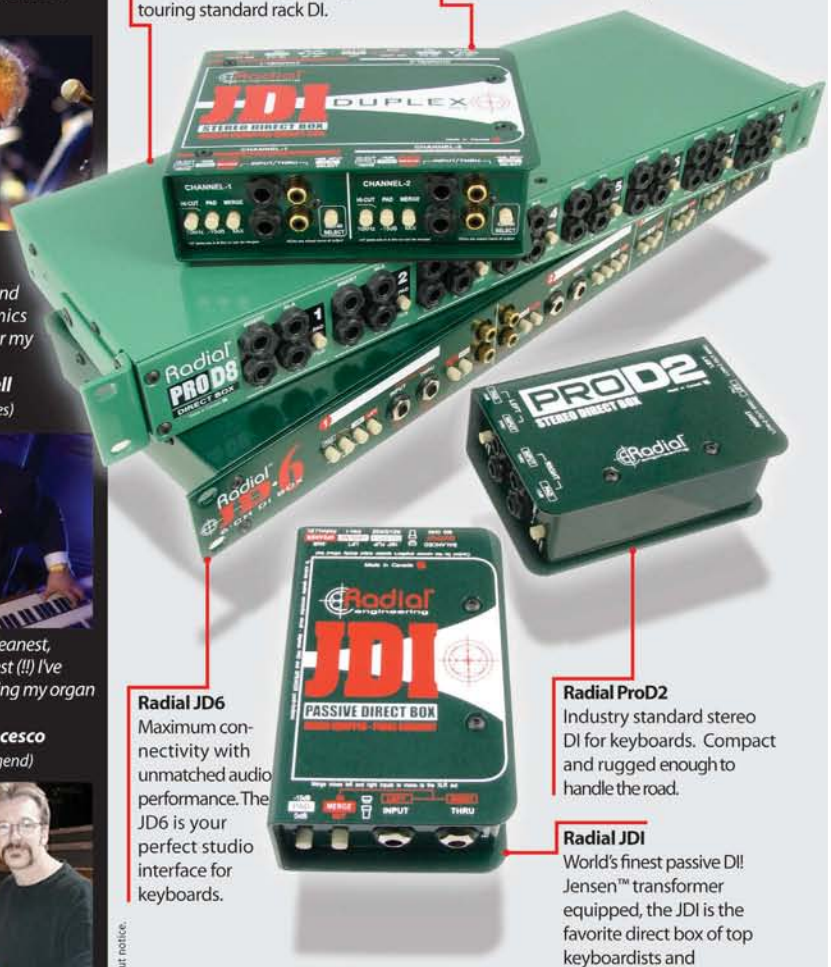

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Editor's Note

There's just something about hanging at the music store and actually getting your hands on that new axe you've been following every rumor and forum post about online. Some argue that the brick-and-mortar gear retailer is a dying breed, and while we hate to think so, it does seem obvious that a shop really needs something special going on to be competitive.

That's why we're researching the best places in the country to play, compare, and buy keyboards and audio gear—and we need your help. Who's great in your neck of the woods? Nobody's off limits. It could be a mom 'n' pop, a particularly good location of one of the big national outlets, or anything in between. How's the selection? Is stuff set up nicely? Can you actually A-B competing keyboards of the same type (workstations, stage pianos, clonewheels, etc.) and hear the difference? What's offered in the way of lessons? Rehearsal space? Do they retain knowledgeable salespeople? Last but not least, how's the vibe? Hit us up by any of the means in "Connect" at right, and you just may see your comments in print. Pictures are welcome, too!

Stephen Fortner
Editor

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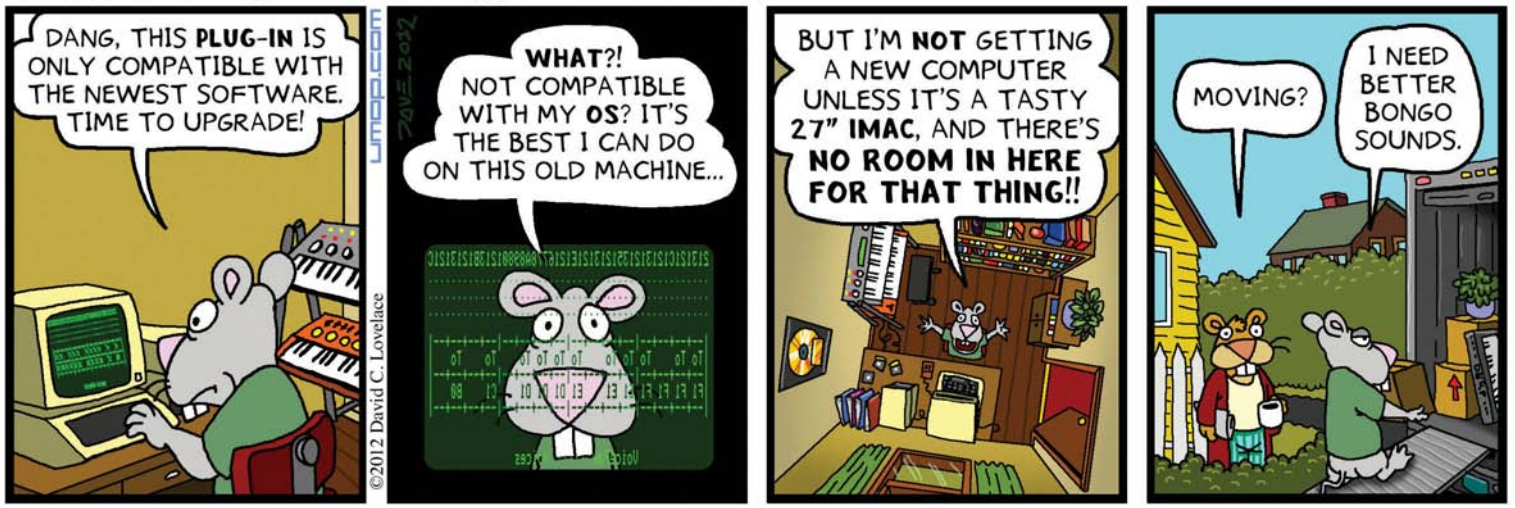
VINCENT VAN DE WIJNGAARD

The First Time I *Heard the Rhodes*.

Jeff Lorber

"The first time I saw a Fender Rhodes was Cannonball Adderly and Joe Zawinul playing 'Mercy, Mercy, Mercy' on *The Ed Sullivan Show*," the fusion pioneer says. "I remember seeing the silver top and thinking it looked and sounded magical." A couple of years later, the Philadelphia native found himself in New York City, having tagged along with a friend who was visiting for a drum lesson. "I used to hang out on 48th Street and check out the music equipment stores," Jeff says. "Manny's was owned by a distant relative of ours, so we hoped to get a deal there," he continues, laughing. "That's where I *played* my first Rhodes—the suitcase, which was the only model available at the time. It was as amazing then as it is now." He pauses, adding, "well, maybe a little more amazing, because of that silver top. . . ." | **lorber.com** | Michael Gallant

the PACKRAT™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DAVE 2012

Ask Us

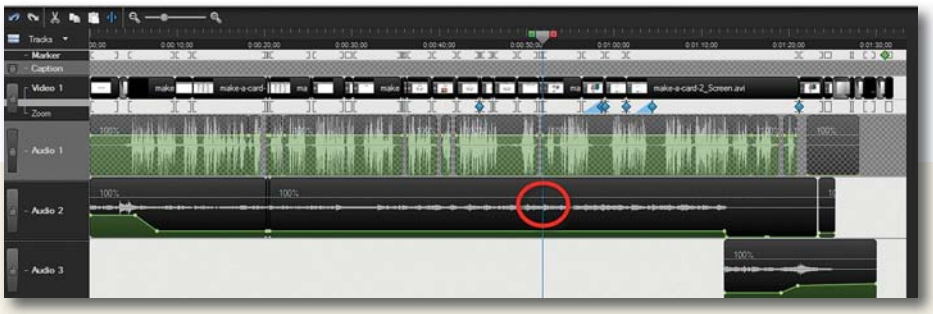
As a software engineering manager by day and musician by night, I'm interested in seeing an article on the inner workings of a DAW or related audio software such as a plug-in. Is this beyond the scope of *Keyboard*? Do most musicians care what makes their software tick? Perhaps Craig Anderton could put together a piece on the subject.

Peter Demus,
via email

While Craig ponders a more practical answer, here's my philosophy-major one: So many times per second (44,100 and up, depending on your sample rate), the digital-to-analog converter behind the outputs of your audio interface reads a number and generates a corresponding analog voltage that your amp or powered speakers can use. Software just does the math that provides that stream of numbers. Deep thought: At any sample-size instant in your tune, *everything* you can hear—audio tracks, effects, soft synths, mixing—boils down to one number. The difference between a "warm and fat" analog synth emulation and a lousy one? Numbers. This is the sort of reductionism that scientists love and artists hate, but at least it pays artists back with entire studios in our laptops. Stephen Fortner

Key Secrets

Creative Tips for Your Gear



Normally when scoring video, we think of adding music *to* video. But working in the opposite direction is especially fun for a musician. In my latest project, a series of software tutorials for RocketLife, I've been editing the video to fit the music. That way, I don't have to mess with tempo ramps and partial bars. Instead, I snip or duplicate frames to match onscreen events (such as button-clicks) with the beat. For example, the moment the product onscreen emerges from a dissolve, it aligns with a beat in the music on audio track 2 (red circle). Track 1 is the voiceover. When the music is less rhythmic or changing volume, I add video crossfades to complement the sound. It's amazing how *right* it feels when the video syncs to the audio. David Battino

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BY LORI KENNEDY AND STEPHEN FORTNER

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All prices are manufacturer's suggested retail (list) unless otherwise noted. Follow keyboardmag.com/news and @keyboardmag on Twitter for up-to-the-minute gear news.

VCMG

Icons Vince Clarke and Martin Gore Rejoin Forces

BY STEPHEN FORTNER

"THIS IS OUR FIRST DANCE RECORD, WHICH SOUNDS LIKE A WEIRD THING to say," reflects Martin Gore about *Ssss*, the new electronic album co-created with fellow synth statesman Vince Clarke. Weird indeed, given that almost every electronic dance music star we talk to cites Depeche Mode—especially the *Speak & Spell* lineup that included both Clarke and Gore—and Clarke's subsequent work in Yaz and Erasure, as top influences. "I suppose both Depeche and Erasure have made very danceable tracks, and remixes were done, and they're considered dance bands in a way," Gore clarifies, "but neither Vince nor I have gone out of our way to make an actual dance record."

Now they have, reuniting as VCMG after three decades of separate successes to produce an impeccable result. The ten instrumental tracks avoid gratuitous bombast and clichéd flourishes, pulsing their way across a sonic landscape the pair describes as "minimal," but that's burbling with enough analog counterpoint to keep the most cerebral of electronica fans listening even as it delivers the gravity of bass and beat that keeps the viscerally-inclined ones dancing.

How did you initially conceptualize this record?

Vince Clarke: I don't know that we ever had a "concept." What happened was, I started writing tracks about two years ago. I'd been listening to a lot of minimal techno music, and after two or three tracks I just thought it would be interesting to collaborate with somebody. But at no time did we sit down and say, "Okay this is the kind of album it's going to be."

Martin Gore: The first contact was an email from Vince to me saying, "I'm thinking of making a techno album. There are no timelines or pressures. Are you interested in collaborating?" I simply said yes, because I was quite excited about the idea of working with Vince again.

Clarke (left) and Gore in a rare restful moment.

TRAVIS SHINN

Yamaha CS-10 above Roland VP-330, with Moog Source and Sequential Pro-One behind.

Given how many techno and electronic artists you've influenced, who influenced *you* going into this project?

VC: I did a Remix for Plastikman [a.ka. Richie Hawtin] a while ago, and I'd never really listened to music like that—I'm a real "songwriter" person. Someone told me about the Beatport website, which specializes in dance music, obviously. I'd never really viewed techno as emotional music, but after listening to a lot of stuff on Beatport, I was blown away by all the sounds people were using. It was a whole new world for me. I also really like the music of Deadmau5. He's a real builder of tracks.

MG: I've been into techno music for a long time. Sometimes I DJ, and when I do, I play a lot of techno. I think we both remember listening to Plastikman's first album when it came out on Mute [the record label that's also home to Depeche Mode and Erasure] and thinking, "This is just *out there* and we don't get it at all!" Coming back to it years later, you realize what a genius and how ahead of his time he was. Which is not to say Plastikman was the basis behind the whole album, but he's definitely someone we admire.

Dance music loves its genres and subgenres. Did you have one in mind at the outset?

VC: I think "minimal" is what we were kind of aiming for, although Martin and I never sat down and conceptualized about it. I think what we were looking to do was make as many interesting sounds and arrangements as possible without the use of lyrics, choruses, and verses. Minimal techno—whatever you want to call it—I love it because people are being very adventurous with sound itself. It's like sound sculpture. In a traditional pop song, you get your emotional lift from a heartfelt lyric or from a chord change in the chorus, but [with techno] you get emotion from the musical lift that goes up, up, up and then goes down to nothing or that has some unexpected twist. It's done purely with sound.

Are there any telltale sonic differences between the parts each of you contributed?

VC: No, it was all done 50/50. I think we both knew when each track was finished—when the arrangement was correct and it didn't need any more stuff. Some tracks I initiated and some tracks Martin initiated, but we both contributed equally to all of them.

MG: I think it's very difficult to tell who did what. I'd never done this whole file-sharing thing before where you add a piece, send it off, and then get it back. It's always very interesting to open your inbox and see what you've got. So it was very interchangeable, the roles that we performed.

File-sharing? So you collaborated remotely? How did that work?

VC: The album was done in both my cabin studio in New England and [Martin's studio] on the West Coast. We both work in [Apple] Logic, which made it easy to share tracks.

MG: Vince just gave me his iDisk password and we shared all the files like that. There was talk of us going through Mute and them encrypting everything, but it seemed like it was less safe and convenient than us just dumping stuff onto Vince's iDisk.

You worked together in the debut lineup of Depeche Mode. What's different—or the same—about your creative process now?

MG: The technology available today is just so mind-blowingly amazing compared to back then. Obviously we could sync things, but it was such a process. Even getting a drum machine to run in time with a sequencer was an effort. But now, you can do *so* much that the real effort is to reign in those possibilities.

How much of the record's sound is owed to your studios full of analog synths, and how much of it could have been done anywhere on a laptop?

VC: My analog stuff is the first thing I go to if I have time. I enjoy the tactile-ness of it, and the unpredictability. Most of the synths in my studio don't have any memory, so every time that I go to a [Roland] System 100M or a Moog modular or something like that, hopefully I'm going to be creating something completely different from what I did before. On my end of the album, I'd record sounds from my analog synths and manipulate them in Logic—I'd cut them up to make interesting rhythms or EQ them in odd ways just to get a variety of sounds.

MG: The majority of it was hardware for me. I always get into these different addictions. Luckily, they're more instrument-based than in the past! [*Laughs*.] My latest addiction has been the Eurorack format—I've been using that quite extensively. Then there are always some old analog classics lying around, like the Gleeman Pentaphonic, Memorymoog, or [Sequential Circuits]Prophet-5.

Martin, were there any Eurorack modules you found yourself reaching for a lot as you worked on the record?

MG: That's a good question. It's such an addiction for me that I'm literally buying stuff every week. I see interviews about people who get so addicted that it's like crack. You know, moving modules around all the time, constantly trying out different things. I couldn't actually say that there's one thing I overused. I do have quite a lot of Ken MacBeth's Eurorack modules, and I used an M5N on the record. I met Ken when we [Depeche Mode] played in Scotland on our last tour. He's an amazing character, one you don't forget easily.

What was the very first sound created for the very first track?

VC: The first sound from the first track that I started was "Single Blip," which is exactly what it was. It started off with just that blip sound—I thought that was funny.

The track "Bendy Bass" seems like a tastefully understated alternative to dubstep bass. What was used for its bass sound?

VC: I try not to go to just one synth for a given part—I'm not one of those people who says, "If it's a bass, I *must* use the Minimoog," for example. I think in "Bendy Bass" it was a combination of Minimoog and [Sequential Circuits] Pro-One. I love the Pro-One, it's a great synth.

Vince, you used the Pro-One heavily in Yaz. Did you take one out on the *Reconnected* tour in 2008?

VC: Actually, most sounds on that tour were from the original multitracks. Some sounds were so degraded because of time that I had

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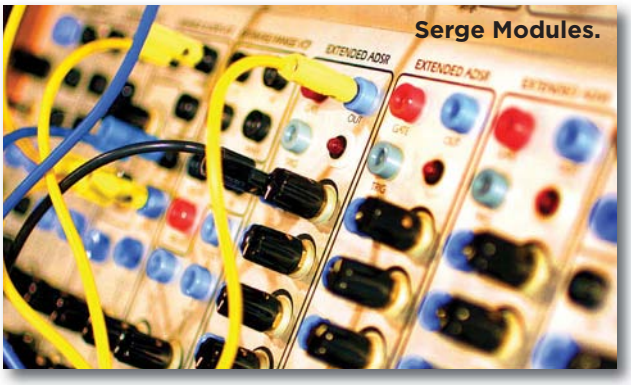

Serge Modules.

Ssss (Mute Records 2012)

to replace them, using analog stuff from my studio. What was interesting about that tour was that I hadn't listened to that stuff for 30 years and I was completely amazed at how little music there was on the tape—how *minimal* it was.

There's a new wave of compact analog synths—sort of the modern equivalent of the Pro-One. . . .
VC: Yeah, I have the one made by Dave Smith [the Mopho]. I think it sounds fantastic, actually. I checked out the rack version of the new Moog [Slim Phatty], and I've got to give it some time. I haven't had a chance to check out the modulars coming from Germany because Erasure has been on tour for six months, and I'm in the process of building a new studio in New York. Once that work's done, I'm looking into getting some of the new modular stuff.

On several tracks on *Ssss*, there are little hits that will do a walk-up of two or three chords, and they have lots of harmonics in them. How did you get that sound?
VC: The way I achieved most of those sounds was by sampling a synth like a Pro-One—something very simple—then making a chord out of those samples, then pitching it up way too high. You know, recording it low and then pitching up high within Logic. That's where you get the interesting harmonics.

How do you sync up your computer-based Logic world with your analog synth world?
VC: Well, obviously most of the analog stuff uses control voltage [CV], and I actually use old Roland MPU-101 units to convert MIDI information into CV. They're quite cool because you can do pitch-bend and stuff like that with those particular modules. When MOTU Volta first came out, I was really intrigued because some of the synthesizers I have will never, ever be in tune! [*Volta can convert automation from a DAW into CV, send it through audio interface outputs, and keep analog oscillators of external gear in tune. —Ed.*] So I tried it with a Moog modular, but to be fair, not for long enough—I only played with it for about a week. That's another thing I'll look into once I get my new studio set up.

Vince, one of the most viral quotes in the history of *Keyboard* magazine is from a vintage interview where you refer to MIDI timing as "sloshy" and "crap." Do you still feel that way?
VC: I don't feel that way at all anymore, because if anything's out of time, which it frequently is, you just move it within Logic. When we were using CV and gate-based sequencers like the Roland MC-4, the timing of those was much better than when we started using hardware MIDI sequencers, especially the early ones.

Remixes are currency and tribute in the dance world. Who would you like to see remix tracks from this album, or otherwise collaborate with?
MG: Wow, that's a loaded question! [*Laughs.*] Well, a lot of the people that I'd like to see remix this record, we've got. So far we've released two singles, we've got Bytone doing a remix, and Terrence Fixmer's done a couple for us. We may get Alva Noto to have a go at another track. I like Alva Noto; he's definitely one of the more interesting artists in the electronic field.
VC: I wouldn't mind producing Paul Simon, because I'm a huge fan of his.

Listening to the record supports something a lot of your fans must feel: That you're back together to show the EDM world how it's done.
MG: I don't know if it's necessarily about showing people how it's done. I think it's quite nice that we did manage to influence a lot of electronic musicians and techno producers, and that now, we've actually been able to go on and pay our respects to what they've created. ♫

See page 82 for a look at Vince's synth-filled Cabin Studio.

Vince with Dave Smith Mopho Keyboard in front of ARP 2500 system.

Get more pics of Vince's rare analog synths plus a full gear list.
keyboardmag.com/may2012

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FOXY SHAZAM

The Explosive Keyboarding of Sky White

BY ROBBIE GENNET

FOXY SHAZAM IS EVERYTHING THAT ROCK 'N' ROLL SHOULD BE: BRASH, raw, unapologetic, and coming for your children. Magnetic singer Eric Sean Nally may be the eyeball glue for most fans [*At his best, he's like a young Freddie Mercury—Ed.*], but your plundered pupils will inevitably stray towards keyboardist Sky White. Beneath the bearded visage and unhinged performance of this stage animal beats the heart of a trained musician with the chops to re-energize the role of keyboardist in a 21st-century rock band.

How do you describe Foxy Shazam to the uninitiated?
I've given up on a complicated explanation. It's what rock is supposed to be like: different and artistic and powerful and meaning something. It's supposed to be scary and fun and include every emotion in the music. I don't think rock 'n' roll really does that right now, so we're trying our best.

There's certainly nothing safe about your live show. . . .
You have no idea how many injuries I've had! I have scars all over, I've had carpal *and* dorsal tunnel. I've had sports-like injuries from the way I play piano. I had my head split open by a bass tuning peg and cried blood for a set. I put every single bit of everything into the show.

Did you come from a musical background?
I grew up at bluegrass festivals with my parents playing. The first rock show I saw was Joe Satriani and Steve Vai. All I remember is it smelled really bad.

What was the first show you went to that made you say "I want to do that"?
I know exactly the show. It was the band that eventually took us out on our first tour ever: Tub Ring. When I was 13 or 14, I was a little classical and jazz player, but I saw them play and their keyboardist Rob Kleiner was amazing.

What did you learn from jazz and classical that you bring to Foxy Shazam?
From classical, it would be knowledge of the tonal things I want to accomplish onstage. From improvising in jazz, it's that I can get that across while mixing in showmanship. For example, I can spin around real fast, throw a foot in the air, and still land on the right chord.

You play a Roland RD-700NX onstage. How does it hold up to the abuse?
Amazingly, this keyboard hasn't broken! I've been doing everything I can to put on the craziest show possible and this thing is not breaking. I always want to be really grateful to Roland because of the way I've treated their instrument.

How do you balance precision of execution with the insane energy of the performance?
It's a hard battle. For performing and entertaining, you want to do everything you possibly can. I want my body to be collapsed somewhere after the set.

Are you using any custom sounds?
I use all stock piano sounds on the RD—no reverb, just straight piano. I grew up a piano player. Though I did recently buy an 88-key 1975 Rhodes. It's sitting in my basement and it's beautiful.

What keyboards did you use on the new album, *The Church of Rock and Roll*?
A third of it is piano from the RD, another third is organ that we got from either the RD or soft synths, and the rest was done on a real Wurly in the studio by miking the little speakers.

Is the whole band involved in songwriting?
It keeps changing around. Between the six of us, we all write all the time. Before this last record, we had hundreds and hundreds of songs.

How did you pare that down for the record?
With all the writing before, there were certain melodies and vocal ideas that we knew could be better and we focused down to make them as good as they possibly could be. Nothing that we started off with ended up being on the record. Nobody will probably ever hear those dozens of songs, but we had to do that in order to get to this record.

What are your favorite tracks and keyboard moments on the record?
"Streets." Every time I hear it, it sounds like touring and being poor and struggling. That one means a lot to me, but honestly, all of them are great. With some tracks, we were wondering if they were too weird, but they made it on. There's some weird pop stuff inside of us that needs to come out artistically.

"I Wanna Be Yours" has a mean organ sound. It was a random organ patch run via MIDI through a [Tech 21] SansAmp. A stock '70s organ, superdistorted with a ton of tape saturation and the

ZACK HALL

mids and lows super-boosted. It just sounds like a horrible monster. I'm a big fan of the sounds on "The Temple." It's part super-heavy, part love-making music. Everything on that one was from the Roland RD-700NX.

How do you translate the intensity of the stage performance to the studio?

The live stuff I'm a little afraid to do in the studio is where I'm purposely smashing chords down and letting up the painful notes just to get some more impact. When recording you're supposed to do it "correctly." On this record, I tried getting a lot of stomps in there and weird dirty chords, things that I want to happen that are not exactly correct things but that get the feeling across.

Spending so much time touring, is it hard to stay creative?

We tour 300 days out of the year, so when I'm home, I try to write at least one song every day. I have a few hundred sitting around from the last couple years. At some point in life I want to compose symphonic music. I have an eight-bit video game project I've been goofing around with. I have a gigantic string section thing with accordion, clarinet, and harp that I've been working on for a while. I call it Traveler Music. I've been composing it all in MIDI so far.

What's next?

We're going on tour in the U.K. opening for The Darkness. When we got signed to Warner Brothers a few years ago, we spent all our tour support flying to the U.K. four times. It's been going a lot faster over there. Over here it takes word of mouth. Most people are afraid or confused the first time they see us.

Isn't that the essence of Foxy Shazam?

Hell, yeah! We're supposed to be frightening and confusing and hard to digest. We're trying to do something that hits people hard. ♫

Music videos, live performances, and humor from Foxy Shazam. (*Warning:* Not appropriate for work or kids.)
keyboardmag.com/may2012

Christopher North

David Lewis

AMBROSIA'S "Biggest Part of Me"

BY JON REGEN

IF YOU WERE ANYWHERE NEAR A RADIO IN 1980, AMBROSIA'S "BIGGEST Part of Me" is probably still stuck in your head. From its soul-tinged vocal harmonies to the simmering stew of keyboards throughout, the song delighted casual listeners, won cred from musos, and rocketed to number three on the *Billboard* Hot 100 chart. Written by frontman David Pack for the band's fourth album *One Eighty*, "Biggest Part of Me" was a departure from Ambrosia's original prog-pop sound. Still associated with the band decades after its original success, keyboardists Christopher North and David Lewis revisited the vintage gear behind the song's success.

Christopher North: I was a founding member of Ambrosia in 1970. The idea was to put together a sort of "supergroup" out of players from the South Bay music scene near Los Angeles. We started as a four-piece, with me on keyboards, Joe Puerta on bass, Burleigh Drummond on drums, and David Pack on vocals and guitar. We released two totally progressive albums and were playing gigs to around 3,000 people a night. Later, when David Pack wrote the hit song "How Much I Feel" on our *Life Beyond L.A.* album, our sound started moving toward pop and "blue-eyed" soul. In those days, I was playing mostly Hammond organ but also piano, Hohner Clavinet, and Fender Rhodes. So I played keyboards on the first two albums, but I left for a brief time before they started recording the third one. That's when David Lewis came into the band.

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Editors' Choice electronic MUSICIAN 2012

Rigs Then and Now

"I wish I still had all that *stuff*," David Lewis jokes, recalling how his trove of vintage keyboards has thinned over the years. Glance at the rigs he and Christopher North presided over in the band's heyday, and you'll wish you had it, too. From Lewis's Yamaha CP70 electric grand, Fender Rhodes, Minimoog, and Prophet-5 to North's chopped Hammond B-3, Hohner Clavinet, and ARP String Ensemble, the Ambrosia keyboard collection was as monumental as the band's hits. "The Prophet got stolen out of my garage," Lewis recalls, "and I foolishly sold the Minimoog, which was modified to have two voices. It was sweet."

Lewis and North remain gigging keyboardists, with North still in the Ambrosia keyboard chair and Lewis sitting in on occasion. Lewis's current axe is the Roland V-Synth. "It's gnarly, man," he says. "When I finally heard the V-Synth and understood how it actually works—how there are five different kinds of synthesis all put together, I flipped. I haven't even scratched the surface of what it can do. I also have a rack-mounted Korg O1/W and a small mixer. When I was in the band Shadowfax, I used something like seven keyboards, but this rig is all I need at the moment."

David Lewis: I graduated in 1976 from the California Institute of the Arts. I was playing around town with a bunch of local bands when the guys from Ambrosia came down to CalArts, and we jammed. It felt great immediately. When Chris left the band for a short period, they thought of me as a replacement. I got the gig right away, but I was never really an organ player. I mostly played piano. So they started auditioning B-3 players and went through quite a few of them until I finally said, "These guys are terrible! Just get Chris back in the band." And so Chris came back and our sound became huge. I was playing mostly Rhodes and piano at that time, and Chris was playing a Chamberlin and a Hammond B-3—piano and Rhodes sound great layered with organ. Then I brought the Prophet-5 in for the next record, *One Eighty*. David Pack had been thinking of using strings on "Biggest Part of Me," but when we started recording with the Prophet, the string idea got axed because the synth sounded so contemporary and full.

CN: The B-3 we used in the song was cut down by our keyboard tech Bob "Omaha" Toth, who was working for Elephant Keyboards as well as Ambrosia at that time. That organ had an effects loop, and the Leslie speaker was customized with a 375W driver and crossover setup with a Gauss bass speaker. The Leslie was powered by two Yamaha amps, which could practically part people's hair in the first ten rows of a venue! What made this organ chop unique was that Bob kept the original tube preamp in it. [*Often, solid-state preamps are used in chopped Hammonds for space and weight reasons. —Ed.*] That made the organ sound much warmer and less harsh than other custom B-3s I've played. When I recorded my parts for the song at LRS Location Recording in Burbank, California, the organ was set up in the control room. Large studio monitors were used instead of headphones, and the Leslie was placed way down the hall with the power amps even further down to eliminate the buzz.

DL: I played Rhodes on the song first. Later, David Pack decided he wanted piano on it as well, so I overdubbed it on top of the Rhodes, which created a great doubling effect on the chords. Combined with the Prophet brass patches, it was a really unique sound for the time. It still sounds great.

CN: I started playing organ at age 16. I got a Farfisa first and then a small Hammond M-3 when I was 17. Even though I've played in churches and I studied pedaling in college, my education really came from listening to people like Jimmy Smith. I've always had an affinity for funky, jazzy kinds of things. I think playing the Hammond *is* really a feel thing. I'm constantly tweaking the drawbars and the Leslie as I play. It's really a two-handed instrument. ♫

See all this gear in action in the vintage video for "Biggest Part of Me."

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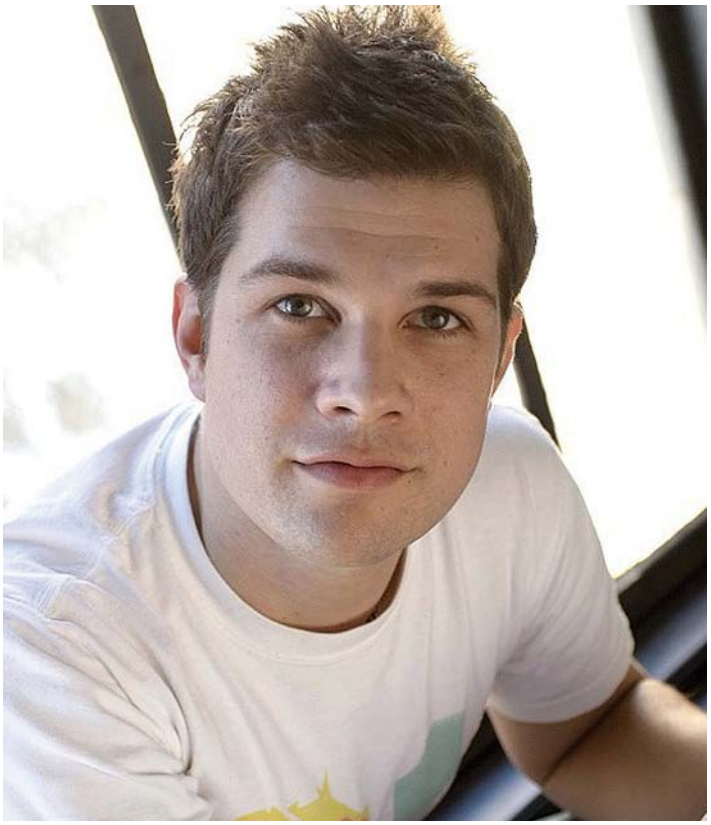

STEPHEN OREMUS

What it Takes To MD on Broadway

BY MICHAEL GALLANT

EVEN FOR SOMEONE AS EXPERIENCED AS GRAMMY-NOMINATED AND TONY-winning musical director Stephen Oremus, piloting a Broadway show night after night is a challenge. For his current gig on *The Book of Mormon*, Stephen simultaneously conducts actors onstage, leads a nine-piece band, plays a Yamaha S90 while changing patches in Apple MainStage, and passes a light saber to the show's lead at just the right moment. This octopus-like multitasking typifies his career, and we wanted to find out how he does it.

Loops Plus Live

To handle often-intense percussion requirements, Oremus and band use a variety of tools. "Drummer Sean McDaniel triggers samples with a Roland SPD-S pad," Stephen says. "We have a series of loops and clicks that he controls with it." Some of the clicks only go to the headphones of the rhythm section, while other sampled loops flesh out heavier drumming sections, freeing up Sean to add live djembe to the mix on certain songs, for example. "We created and mixed all the loops in Logic before loading them into the SPD-S," Stephen says. "Except for those percussion loops, everything in the show is played live."

Sound Design

"There were some very specific sounds that my co-orchestrator Larry Hochman and I created in collaboration with our synth programmer, Randy Cohen," Stephen says. "Randy chained the sounds together in Apple MainStage. We access them for each show from two Yamaha S90 synths." Stephen plays one S90 from the conductor chair and keyboardist Adam Ben-David handles the other. While both musicians often play multiple patches and splits within a single song, Adam "gets all the fun stuff," according to Stephen. "He sometimes has three or four zones going. He plays Theremins, anvils falling, and all sorts of other wild sounds."

Staying Organized

For Adam and Stephen, written comments in the show's sheet music keep their multiple patch changes and keyboard splits manageable. "We might write into the score, 'play two octaves up, but it sounds three octaves lower,' for example," Stephen explains. "When we're orchestrating, we always consider how things work between the player and the instrument, so we don't try to jam too much in. Each song is labeled in the S90 itself as well—its display shows the song name and the measure where the patch change occurs."

Multiple Backups

"Each S90 has its own computer and backup," Stephen says. "If the primary computer goes down, I have a pedal that switches over immediately." Stephen has had to use his backup more than once: "During one high-pressure show, with critics in the audience, a sound started cutting out. I was holding a note, and all of a sudden—[*makes a stuttering noise*]. I immediately switched to backup and Adam got under my podium and restarted my primary computer. As I was playing the backup, the primary was rebooting." A third option is to use the S90 for its internal sounds instead of just as a MIDI controller. "If all else fails," he says, "at least I can have a piano sound." ♫

Watch our orchestra pit tour with Stephen Oremus.

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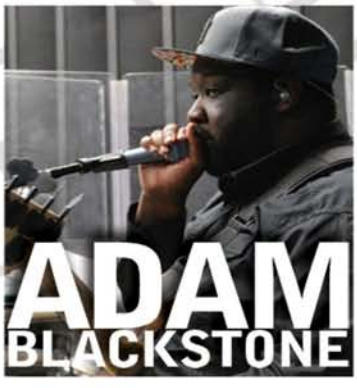

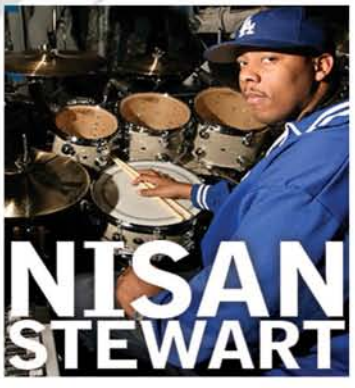

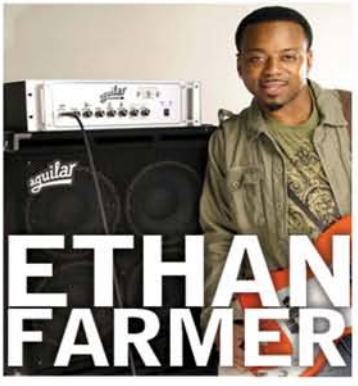

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THE FUTURE OF SOUND

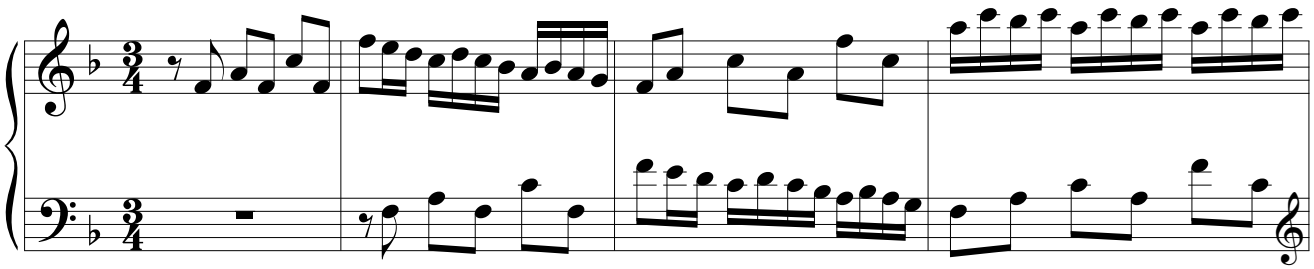
Hand Independence in Improvisation

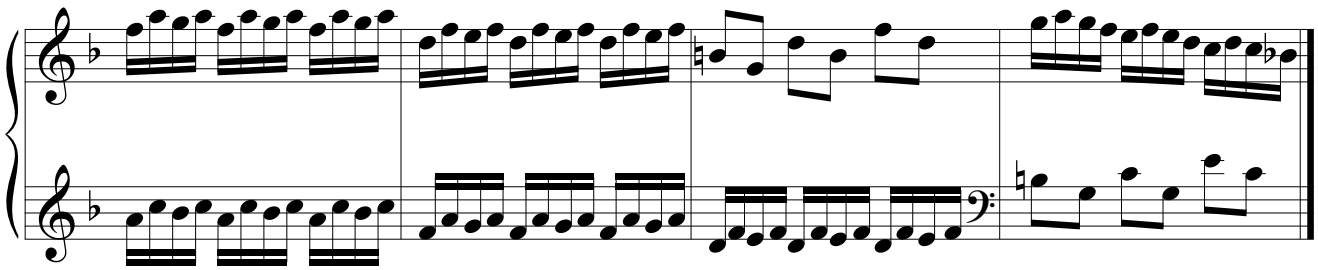
BY DAN TEPFER

ART TATUM ONCE TOLD A YOUNG, BOASTING BUD POWELL, "LOOK, YOU COME IN HERE TOMORROW, and anything you do with your right hand, I'll do with my left!" Tatum had incredible hand independence, yet more than half a century later, the ability to play musical ideas equally well in the left and right hands remains a rare skill among jazz pianists. For me, it all started with Bach. As a kid studying classical music while teaching myself jazz, I remember feeling that I should be able to improvise lines with my left hand and accompany with my right just as well as the other way around. I've been hooked on the topic ever since. Here are some ideas I use to set my hands free.

1. Hearing the Left Hand

When we play music in both hands, what we play in our right hand tends to overwhelm our melodic hearing. This is because of natural force of habit, and because our ear tends to be drawn to higher pitches. To get used to letting your left hand take melodic precedence in your listening, try singing the left hand part of **Ex. 1** while you play the entire example. This is an excerpt from Bach's "Two Part Invention No. 8," and an exercise I got from the acclaimed jazz pianist Danilo Pérez.



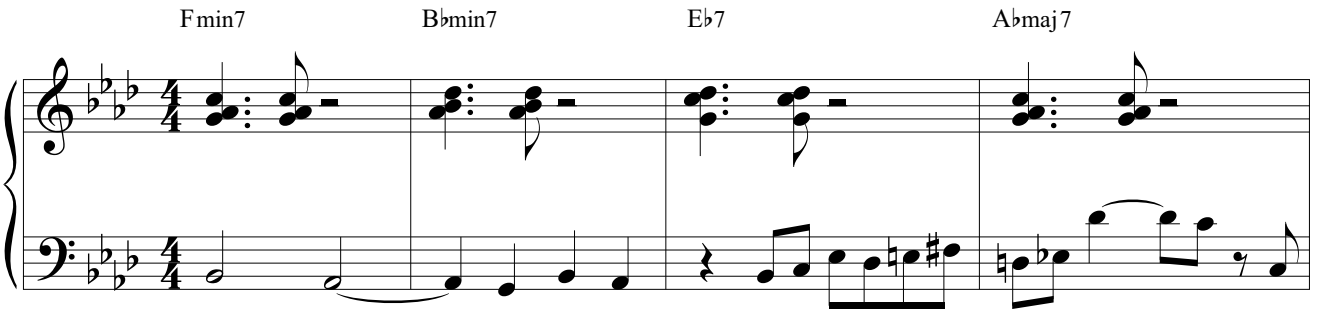


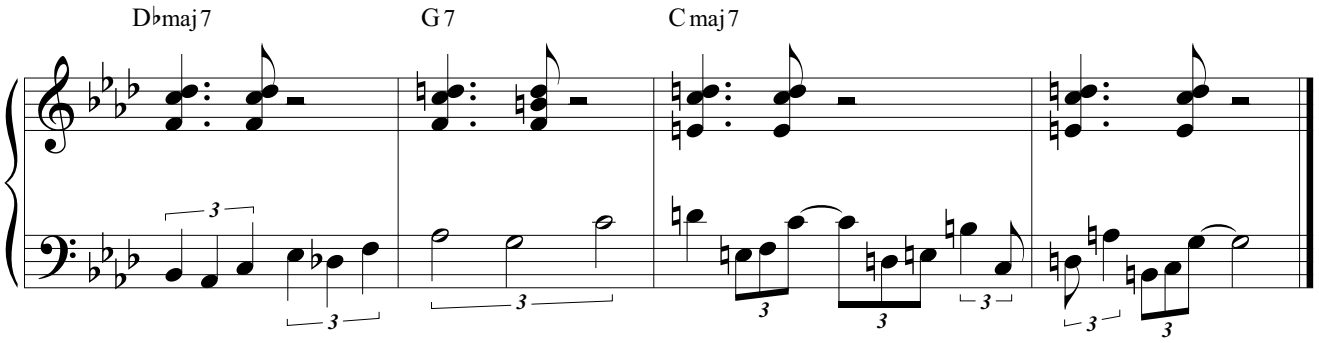
2. Left-Hand Lines with Simple Comping

Start things off by keeping the harmony static and comping in the plainest way possible. In **Ex. 2**, I'm staying in *C* minor, playing constant quarter-note chords in my right hand and improvising lines with my left. You may want to start by just using quarter-notes and eighth-notes in your left hand. Once you get comfortable with these techniques, introduce more rhythmic complexity. Get used to the sound of notes like sevenths and ninths being in the bass instead of the treble, and remember never to sacrifice phrasing or touch for the sake of pyrotechnics.

3. More Involved Comping

To work on my groove and the rhythmic precision of my lines, noted pianist and educator Kenny Werner once suggested I practice tunes with a "Charleston" rhythm in my left hand while playing lines with my right. In **Ex. 3**, I'm reversing that idea by playing that rhythm in my right hand, and soloing with my left hand over the cyclical harmony found in jazz standards like "All the Things You Are." You can start by playing lines with half-notes only, and then gradually increase the rhythmic independence of your left hand by introducing quarter-notes, eighth-notes, quarter-note triplets, and finally, half-note triplets. Use rests, too—don't get locked into anything. Once you get comfortable with these techniques, try switching which hand solos and which one comps every chorus.





4. Contrary Motion

Contrary motion is one of the fundamentals of good counterpoint. It simply means that two melodies move in opposite directions, which helps convey their independence to the ear. It also makes typical problems like the use of parallel fourths and fifths disappear. In **Ex. 4**, I'm improvising two lines that move in contrary motion over standard harmonic chord changes. If one moves up, the other moves down, and vice-versa. Start very slowly and gradually increase the tempo. Try to make each line have as much musical integrity as possible. This is something that you'll often hear renowned pianist Fred Hersch do in performance.

VINCENT SOYEZ

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"Contemporary pianists like Fred Hersch and Brad Mehldau have made hand independence a central element of their style, but it's not easy. Something about how the brain is wired makes it harder than one might think. But it's very rewarding if you put in the time." So says Brooklyn-based jazz pianist and composer **Dan Tepfer**. He was voted one of the Best New Artists of 2010 by *Jazz Times* on the strength of his album *Five Pedals Deep*. He has worked with Lee Konitz, Paul Motian, and Gary Peacock, and was profiled in our Nov. '11 issue. Visit him at dantepfer.com.

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The Fine Art of Phrasing

BY ARMEN DONELIAN

***PHRASING* IS AN OFTEN OVERLOOKED BUT INCREDIBLY IMPORTANT ASPECT OF KEYBOARD** performance, where two worlds merge: science and emotion. Mozart, Chopin, Schumann, and Debussy are just a few classical pianists whose music epitomizes effective phrasing. Duke Ellington, Nat "King" Cole, Ahmad Jamal, and Bill Evans are among my favorite jazz pianists for that very same reason. The music's actual content will indicate your best approach to phrasing it.

1. Phrasing Basics

A **phrase** is a basic musical unit that's **rhythmic**, **melodic**, and/or **harmonic** in nature (often it's all three) and which communicates musical meaning. **Ex. 1a** is mainly **rhythmic**, with minimal pitch content. Sing or scat it a few times to yourself—it's tricky! Since the second half is essentially an answer to the first, the musical meaning arises from **call-and-response**. **Ex. 1b** is primarily **melodic**, based on an *A* melodic minor scale and simple rhythmic content. It's lyrical, smooth and flowing, and conveys musical meaning through its "rise and fall" contour, gradually slowing rhythmic values, and modal chromaticism. Sing it a few times, and then play it in a slow, even tempo. **Ex. 1c** on page 38 is typical of a **Baroque fugue** theme, and its strong suit is harmony. Play it and listen to how the melody outlines the chords indicated by the symbols. **Ex. 1d** on page 38 is a complex phrase in 5/4 meter, consisting of three phrases separated by rests, each with interrelated rhythmic, melodic, and harmonic aspects that form a larger musical statement.

Ex. 1a.

Ex. 1b.

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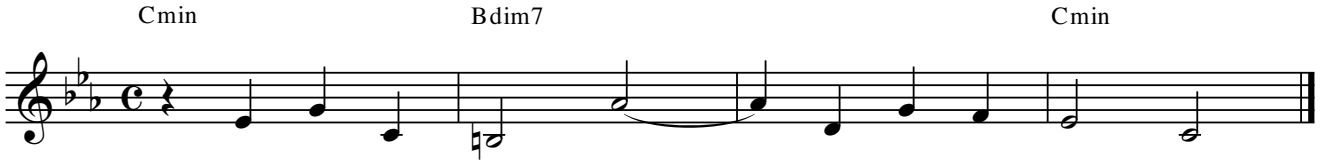
Ex. 1c.



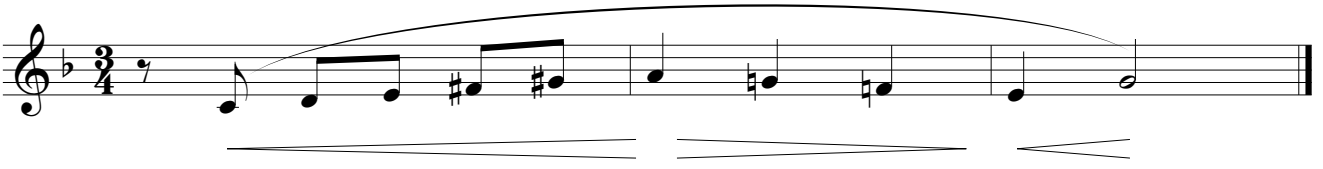
Ex. 1d.

2. Rhythmic Phrasing

How notes are **grouped**, and how these groupings affect your interpretive performance, is what phrasing is all about. When studying phrasing, begin by examining a phrase's **rhythm**. Ignore the pitches and sing or tap it a few times, slowly. Then, look for **strategic points of emphasis** that serve the overall rhythmic mission of the tune: reduced or long rhythms, tension created by polyrhythms, that kind of thing. For example, a long rhythm of **dotted quarter-notes** underlies the first half of **Ex. 1a**. In the second half of the example, the **quarter-note triplet** is the underlying rhythm. You can emphasize the call-and-response character of **Ex. 1a** by using contrasting articulations in the two halves of the phrase, as in **Ex. 2** below.

3. Melodic Phrasing

It's also important to study a phrase's **pitch content**. Begin by removing its rhythms to expose its pitches: Sing them a few times, slowly and intentionally out of time. Then, look for **strategic pitch motives** made of underlying intervals, note patterns, or harmonies, to group notes accordingly. (The notes in **Ex. 1d** consist of short sequences of **stepwise thirds** that are developed, repeated, transposed, inverted, and rearranged). Also, notice the "ups and downs" in a melody, known as changes in **contour**. These can suggest ups and downs in loudness, too. In **Ex. 1b** there's a rise through bar 1, a fall in bar 2, and so on. This is a good starting point for phrase interpretation and expression, as in **Ex. 3**.



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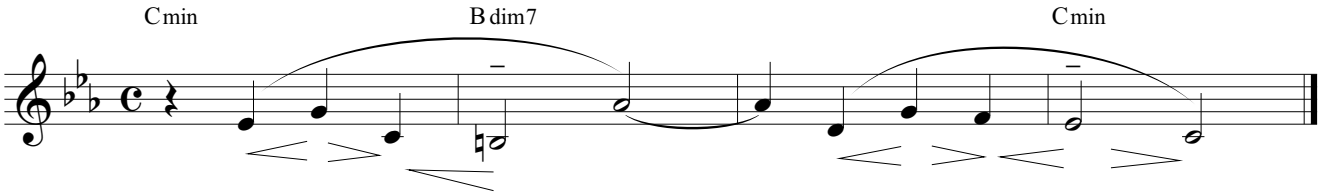
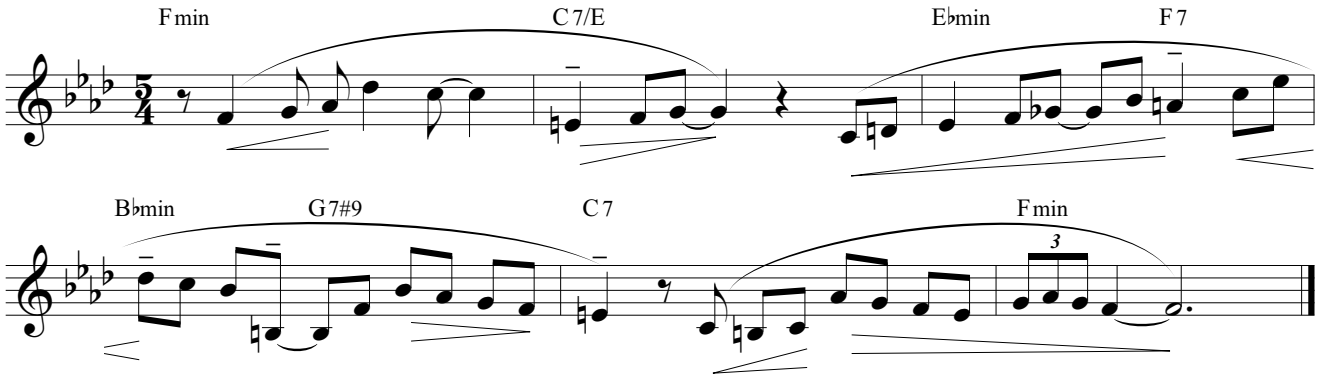
4. Harmonic Phrasing

Performing every contour as in **Ex. 3**, without regard for a note's harmonic function, would vastly oversimplify the art of phrasing. Back in **Ex. 1c**, the *B* natural in bar 2 deserves emphasis even though it's the lowest note. Why? Because, in this phrasing situation, its role as harmonic guide tone embedded in the melody notes *C* and *B* overrides its descending pitch contour. The *E*♭ in bar 4 deserves emphasis for the same reason, as seen in **Ex. 4**.



5. Guide Tone Phrasing

Guide tones outline **polyphonic voice leading** of harmonic cadences. They create and/or resolve harmonic tension and contain significant harmonic content. They clarify the music's harmonic structure, so they really deserve expressive emphasis. The descending guide tones that deserve this emphasis in **Ex. 5** are in bar 2 (*E*), bar 3 (*A*), bar 4 (*D*♭ and *B*) and bar 5 (*E*).



What Does the Music Want?

"In order to develop and project a personal sense of phrasing, you need to educate yourself thoroughly about concrete musical details—what they mean, and what they're instructing you to do," says **Armen Donelian**, who has performed with Sonny Rollins, Chet Baker, and Mongo Santamaria. Currently on the faculty of William Paterson University and the New School, he also teaches at top conservatories in Europe. Donelian's latest album *Leapfrog* and his new book *Whole Notes: A Piano Masterclass* are available now. Find out more at armenjazz.com.

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File Info
16000µs
8000µs
4000µs
2000µs
1000µs
500µs
µs
s
-30 -25 -20 -15 -10 -5
Test Interval: 1000 µs
Current Latency: 534 µs
Absolute Maximum: 3730 µs
Some device drivers on this machine behave bad and will probably cause drop-outs in real-time audio and/or video streams. To isolate the misbehaving driver use Device Manager and disable/re-enable various devices, one at a time. Try network and W-LAN adapters, modems, internal sound devices, USB host controllers, etc.
Stop
Reset
Exit
Analysing DPC latency ...
www.thesycon.de
DPC Latency Checker V1.1.0
File Info
Test Interval: 1000 µs
Current Latency: 626 µs
Absolute Maximum: 1682 µs
This machine should be able to handle real-time streaming of audio and/or video data without drop-outs.
Stop
Reset
Exit
Analysing DPC latency ...
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Fig. 1. The free utility DPC Latency Checker. *Left:* A Windows laptop with WiFi enabled and system power plan set to balanced. *Right:* What happens when you disable WiFi and change the system power plan to high performance.

Live on a Laptop

TOP TIPS FOR HASSLE-FREE GIGS WITH VIRTUAL INSTRUMENTS

BY CRAIG ANDERTON

CONSIDER TWO IMPORTANT RULES OF USING VIRTUAL INSTRUMENTS LIVE:

1. Your entire system could do an Epic Fail at any moment, but . . .
2. Your system will probably give you years of reliable operation.

So this is a "hope for the best, but plan for the worst" situation—and this article is about how to plan for the worst.

Mac Versus Windows

For desktop computing, I use both; on laptops, for almost a decade I used only Macs, but now I use only Windows. Computers aren't a religion to me—and for live performance, they're simply *appliances*. I'd switch back to Mac tomorrow if I thought it would serve my needs better, but here's why I use Windows for playing soft synths live.

1. **Less expensive hardware.** If the laptop dies, I'll cope better.
2. **Often easier to fix.** With my current Windows laptop, replacing the system hard drive takes about 90 seconds. Laptop drives are smaller and more fragile, so this matters.
3. **Easier to replace.** Although it's getting much easier to find Macs, if it's two hours before the gig in East Blurfle and an errant bear ate my laptop, I'll have an easier time finding a Windows machine.
4. **Higher performance when running at low latencies.** Don't take my word for it: Go to dawbench.com before you start writing hate mail.
5. **Optimization options.** This is a double-edged sword, because if you buy a laptop from your local big box office supply store, it will likely be *anti-optimized* for live performance with software instruments. We'll cover tweaks that address this, but you'll have to enter geek mode. If you just want a Windows machine that works, then . . .
6. **Consider a pre-optimized audio laptop.** I've used laptops from PC Audio Labs, Rain, and ADK, and they've all outperformed off-the-shelf laptops. My current music laptop is a PC Audio Labs x64 machine that was optimized for video editing, but the same qualities that make it rock for video make it rock *and* roll for music. Of course, if "you're a Mac" (perhaps because MainStage or Logic is your act's centerpiece), be my guest—even a MacBook Air has enough power to do the job. [*Even the previous generation MacBook*

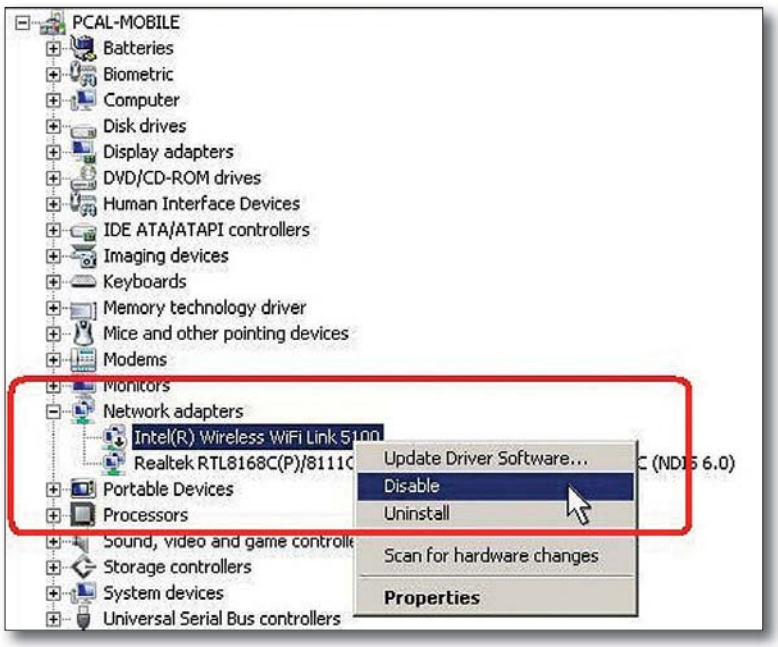

Fig. 2. In Device Manager, disable any hardware you're not using. Onboard wireless such as WiFi and Bluetooth is particularly problematic.

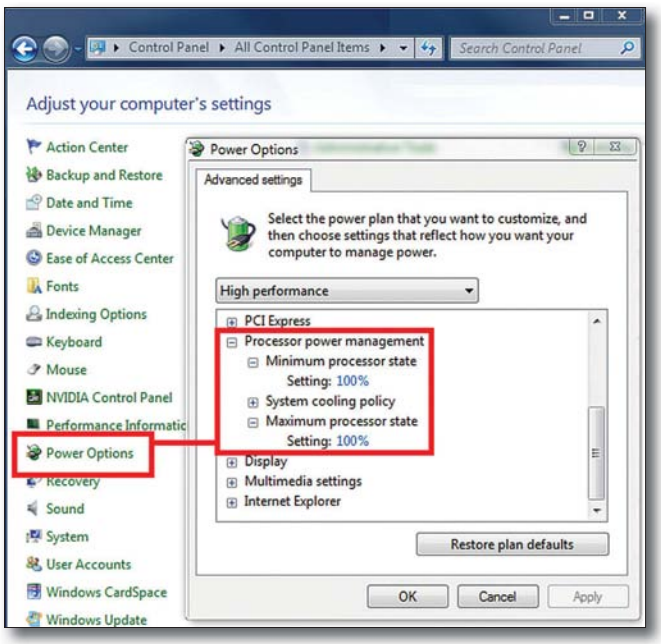

Fig. 3. Create a power plan that runs the processor at 100% for both minimum and maximum power states. Laptops will have an option to specify different CPU power states for battery operation; set those to 100% as well.

Fig. 4. A USB extension cable can keep a USB stick from breaking off at its base (and possibly damaging your motherboard) if pressure is applied to it.

Air performed impressively, as our July '11 review proved.—Ed.] But if you're starting with a blank slate, or want to dedicate a computer to live performance, Windows is currently a pretty compelling choice.

Preparing for Disaster

There are two main ways disaster can strike:

1. The computer can fail entirely. One solution, while pricey, is a redundant, duplicate system. Consider this an insurance policy—it will seem inexpensive if your main machine dies. Another solution is to use a synth or workstation with internal sounds as your master MIDI controller—think Yamaha Motif or MO series, Korg Triton or Kronos, or Kurzweil PC series. If your computer blows up, at least you'll have enough sounds to get through the gig. If you *must* use a controller-only keyboard, then carry an external sound module you can use in emergencies.

If you have enough warning, you can buy a new computer before the gig. In that case, though, you'll need to carry everything needed to re-install the software you use. One reason I use Ableton Live for live performance and hosting soft synths is that the demo version is fully functional except for the ability to save—it won't time out or emit periodic noise bursts in the middle of a set. I carry a DVD-ROM and USB memory stick (redundancy!) with everything needed to load into Live to do my performance. So if all else fails, I can buy a new computer, install Live, and be ready to go after making the tweaks we'll cover shortly.

2. Software can become corrupted. If you use a Mac, bring along a Time Machine hard drive. With Windows, enable system restore—the performance hit is very minor. Returning to a previous configuration that's known to be stable may be all you need to fix a system problem. For extra security, carry a portable hard drive with a disk image of your system drive. Macs make it easy to boot from an external drive, as do Windows machines if you're not afraid to go into the BIOS and change the boot order.

Windows 7 and Vista Tweaks

Neither Windows nor Mac OS are realtime operating systems. Music is a realtime activity. Do you sense trouble ahead?

A computer juggles multiple tasks simultaneously, so it gets around to musical tasks when it can. Although computers are pretty good at juggling, occasional heavy CPU loading (spikes) can cause audio dropouts. Although one option is increasing latency, this

produces a much less satisfying feel. A better option is to seek out and destroy the source of the spikes.

Your ally in this quest is DPC Latency Checker, a freely downloadable utility. LatencyMon is another useful program, but a little more advanced. DPC Latency Checker monitors your system and shows when spikes occur (see Figure 1 on page 42); you can then turn various processes on and off to see what's causing the problems.

From the Start menu, choose Control Panel, then open Device Manager. Disable (don't uninstall) any hardware devices you're not using, starting with any internal WiFi card—it's a major spike culprit. Even if your laptop has a physical switch to turn this on and off, that's not the same as actually disabling it (see Figure 2 on page 43). Also disable any other hardware you're not using: onboard webcam, Ethernet port, internal audio (which you should do anyway), fingerprint sensor, and the like.

By now you should see a lot less spiking. Next, right-click on the Taskbar and open Task Manager. You'll see a variety of running tasks, many of which may be unnecessary. Click on a process, then click on End Process to see if it makes a difference. If you stop something that interferes with the computer's operation, no worries—you can always restart.

Finally, click on Start. Type "msconfig" into the Search box, then click on the Startup tab. Uncheck any unneeded programs that load automatically on startup. If all of this seems too daunting, don't worry; simply disabling the onboard wireless in Device Manager will often solve most spiking issues.

The Laptop Alternative

If laptops make you nervous, there's an alternative: the Muse Receptor line and its offspring, the MuseBox (shown). These stuff what's essentially a computer into a sturdy, road-worthy box, and run virtual instruments and processors. It can connect to a laptop, which serves more like a "terminal" for accessing the Receptor's innards, but you can also treat it as a plug-and-play sound machine. Get two, and now you have redundancy—the Holy Grail of live performance. Rather than spend a lot of pages on the inherent coolness of the Receptor concept, check out the MuseBox review in next month's issue.

Power Use for Power Users

Laptops try hard to maximize battery life. For example if you're just composing an email, the CPU

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can loaf along at a reduced speed, thus saving power. But for realtime performance situations, you want as much CPU power as possible.

Always use an AC adapter, as relying on the battery alone will almost invariably shift into a lower-power mode. With Windows machines, the most important adjustment is to create a power plan with maximum CPU power.

With Windows Vista or 7 (Windows XP's power management is pretty inflexible), go to Control Panel > Power Options and create a new power plan. Choose the highest-performance existing power plan as a starting point. After creating the plan, click on Change Plan Settings, then click on Change Advanced Power Settings. Open up Processor Power Management, and set the Maximum and Minimum processor states to 100% (see Figure 3 on page 43). If there's a system cooling policy, set it to Active to discourage overheating.

If overheating becomes an issue (it shouldn't), you can probably throttle back a bit on the CPU power, like to 80%. Just make sure the minimum and maximum states are the same; I've experienced audio clicks when the CPU switched states. (In the immortal words of Herman Cain, "I don't have the facts to back me up" but it seems this is more problematic with FireWire interfaces than USB.)

The Happy Laptop

A laptop's connectors are not built to rock 'n' roll specs. If damaged, the result may be an expensive motherboard replacement.

Ideally, every computer connection should be a break-away connection; Macs with MagSafe power connectors are outstanding in this respect. With standard power connectors, use an extension cable that plugs between the power supply plug and your computer's jack. Secure this extension cable (duct tape, zip ties, wrap it around a stand leg, whatever) so that if there's a tug on the power supply, it will pull the power supply plug out of the extension cable jack—not the extension cable plug out of the computer. With USB memory sticks or software license dongles, use a USB extender (see Figure 4 on page 43 between the USB port and external device.

It's also important to invest in a serious laptop travel bag. I prefer hard-shell cases, which usually means getting one from a photo store and configuring the internal foam for a computer instead of cameras.

Finally, remember when going through airport scanners to put your laptop *last* on the conveyer belt, after other personal effects. People on the incoming side of security can't run off with your laptop, but those who've gone through the scanner can if they get to your laptop before you do. ♫

Craig Anderton *is Executive Editor of* Electronic Musician *magazine, and Editor in Chief of harmonycentral.com. He has been using laptops in live performance for over a decade.*

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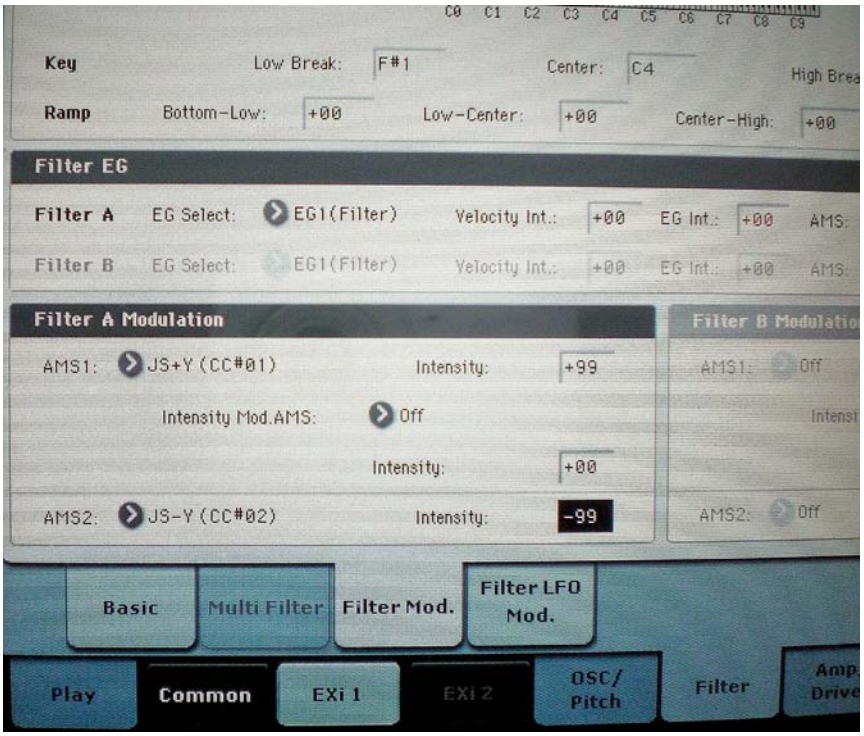

Fig. 1. The Filter Mod page in a sound program on the Korg Kronos. AMS means "alternate modulation source." I've assigned the up direction of the joystick (JS+Y) to open up the filter cutoff and the down direction (JS-Y) to close it down.

THE ART OF SYNTH SOLOING

Filter FUNdamentals

BY JERRY KOVARSKY

SINCE WE LAUNCHED THS COLUMN IN DECEMBER 2011, WE'VE COME A LONG WAY in exploring pitch-related performance techniques. This month, we're changing gears to learn some programming concepts to enhance the presets you use, and to help you create your own presets as well. We'll start with something nearly every synth has in common regardless of what kind of technology it uses to generate sound: the filter.

Back when all synthesizers had knob-laden front panels (thankfully, this design trend has been coming back), it was second nature to reach out and change settings during performance. Since synths had limited preset memory or none at all, you had to constantly interact with the synth, unless you had a rock-star budget and could afford a spare keyboard for every sound you needed to make. Today, if you have an instrument with plenty of front panel controls, or some modular gear, you know what I'm talking about. Varying your sound while playing keeps things interesting and avoids the common trap of simply playing a lot of notes—not that there's necessarily anything wrong with that! Let's start exploring some ways you can get into this, and we'll move deeper into associated programming and playing techniques in the next few months.

Filter Types

The most common move you can make is to sweep a filter, starting from a closed sound and opening up, or increasing the cutoff as you go. Most synths have a controller assigned, or dedicated to filter cutoff, and most soft synths will have that parameter assigned to a MIDI continuous control (CC) number for easy access. Hold a low note and sweep the filter—and try not to move your lips while doing it!

To be sure everyone is on the same page, I'll start with some basics. A filter is a component of a synthesizer that blocks some of the harmonic content that's coming from the oscillator(s). It's *subtractive*, meaning it takes away from the harmonic content of the sound. Some filters can be considered to add to the sound due to their emphasizing certain frequencies, but we'll save that for a future column.

The most common type is a lowpass filter, which passes frequencies below the cutoff point and blocks frequencies above it. Starting with this type of filter "closed" will produce a very dark or muffled sound, and as you increase the cutoff, the sound gets brighter. How much change you hear depends on what you're feeding the filter from the oscillator. If

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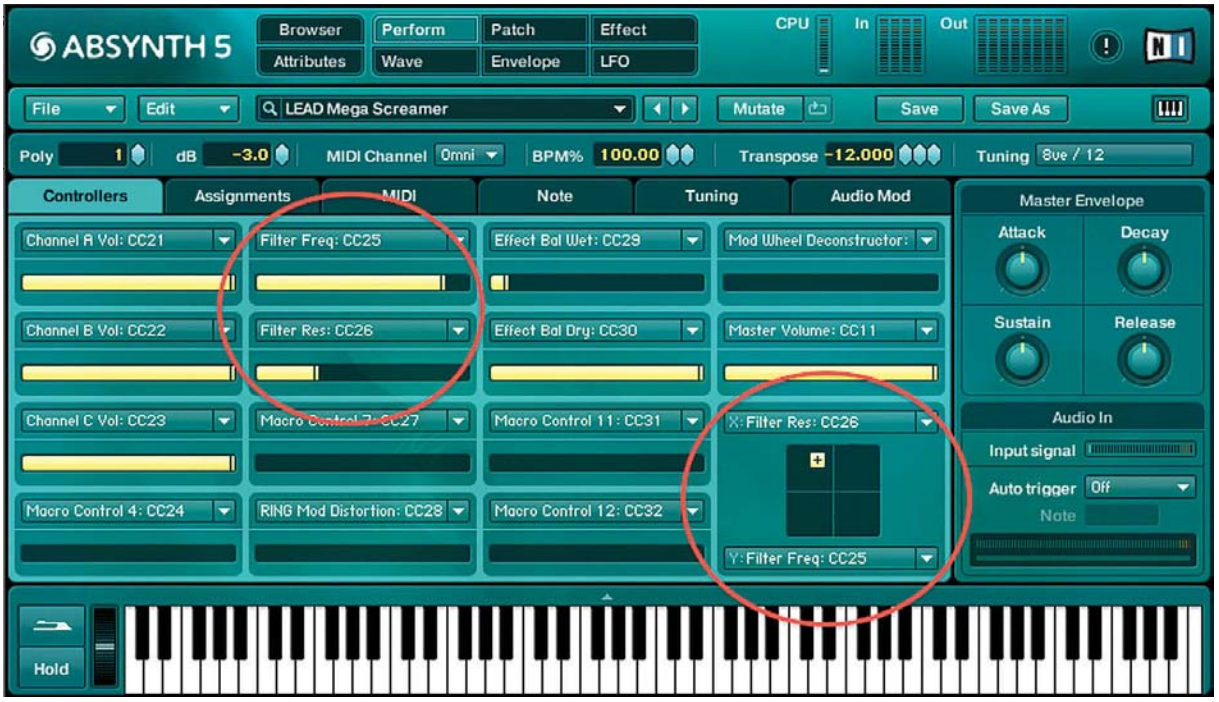

Fig. 2. Absynth's filter cutoff and resonance are controlled by MIDI CCs 25 and 26, respectively. In turn, I've assigned these to the Y and X axes of an external Kaoss pad, letting me "play" both parameters with one finger.

it's harmonically rich (like a sawtooth wave or a sample of an organ with lots of stops pulled out), you'll hear a lot. If it's is very simple (like a sine wave), not so much.

It's common to assign cutoff frequency to a knob, slider, or sometimes the modulation wheel. Control sources like an envelope can vary the cutoff over time. So can velocity, based on how hard you hit a key.

Another common filter type is highpass, which lets the frequencies above the cutoff through and blocks those below it. Starting from the lowest level, your sound will be unchanged; as you sweep higher, you'll hear a brighter or thinner sound.

A bandpass filter passes frequencies within a defined range, blocking everything but this "slice" of harmonic content. A band-reject filter does the opposite, letting everything through except for the frequencies within the defined range.

I've been saying how a filter blocks frequencies, but it's not always a severe cut. It's usually a slope or rolloff, and the reduction in volume of the blocked frequencies is measured in dB (decibels) per octave. The steepest cut is usually a 24dB-per-octave design, and it's common to see 18, 12, or even 6dB designs.

Resonance

Resonance emphasizes a narrow band of frequencies right near the cutoff point, creating a sharp, nasal quality. Increasing the resonance, holding a low note, and sweeping the cutoff frequency, is a classic technique for getting a wet, "squirty," sharp sound. With an initialized or very basic sound, try setting the resonance of your synth around 75 percent of the way up, then sweeping the cutoff low to high. Adjust the resonance to various levels and get to know what works best for your taste, with different waveforms or samples, and for different ranges of your keyboard. Then, "reverse engineer" the filter settings of your favorite factory presets from your synth.

Not all synth filters are resonant (those that aren't don't have a resonance control/parameter), but these days, most are. A word of caution: Sweeping the filter with the resonance set *too* high can be hazardous to your speakers and eardrums, so keep the volume down during your initial experiments!

Playing the Filter

Most modern ROMplers and workstations offer many ways to modulate filter cutoff and resonance beyond simply turning dedicated knobs, so you can keep the hardwired settings but add another controller to make "playing" the filter more easy during your screamin' keyboard solo. On Yamaha Motifs, you set this up as part of a Controller Set, which is a modulation matrix for assigning hardware controls to various destinations. On Korg keyboards like the Triton, Karma, M3, and Kronos, you do it using the AMS1 and AMS2 sources on the Filter Mod Page (see Figure 1 on page 48).

In soft synths, the most common way to control these parameters is with a MIDI CC assignment, either factory-assigned or customized via MIDI Learn as part of your own controller map. Additional assignments can be added if the synth offers a Modulation Matrix, which we discussed in December 2011's column.

What other controllers would you want to sweep the filter cutoff? If your synth/controller has sliders, try one—it's a different feel than a knob. Using an X/Y pad (such as on the Novation SL controllers, Minimoog Voyager, or Korg Kaoss) or vector joystick (such as on the Korg Kronos) is a very cool way to do it. In Figure 2 above, I've assigned the cutoff in Native Instruments Absynth to the Y-axis (up and down) to filter cutoff, and resonance to the X-axis (left and right). This lets me interact with both parameters using one controller, which is much easier than trying to twirl two knobs while also playing notes! ♫

Jerry Kovarsky *has had a more than three-decade career in product development, brand management, and sound design.*

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Audio examples of different filter types and associated performance techniques.

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Monster Leads
PART 2

BY FRANCIS PRÈVE

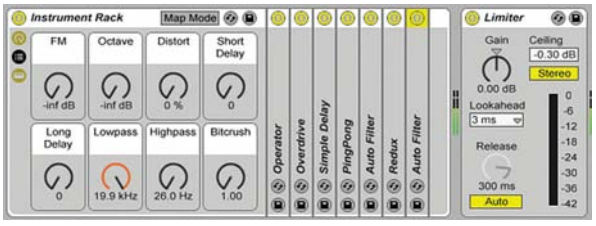
LAST MONTH, WE LOOKED AT A CLASSIC APPROACH TO MAKING MONSTER LEADS VIA LAYERING AND blending multiple synths playing the same riff. For the second part of this tutorial, we'll look at a more complex way of whipping up memorable leads that morph and mutate via macros. We'll be using Ableton Live and its FM/subtractive synth, Operator, but you can get the same result in other DAWs, notably Propellerhead Reason's Combinator. Here's how to do it.

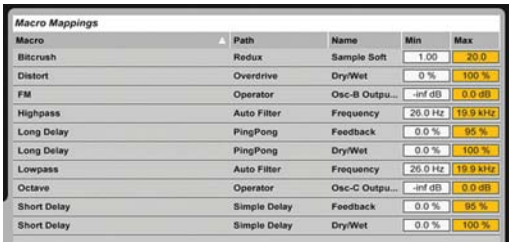
Step 1.

Once you've crafted a catchy lead, add Operator (or another soft synth) and select a few parameters that make your sound go from simple to massive. For this example, I started with a simple sine wave on oscillator 1, added FM from oscillator 2 at a 1:1 ratio, and then layered a third oscillator playing a square wave an octave higher. Once you have your basic synth patch and a few cool parameters selected, it's time to go big.

Step 2.

Next, add a few effects that add dimension to the original synth. For this example, I put an overdrive immediately following Operator. Then I added a tight stereo delay with left and right times set at 33.7ms and 36ms, respectively. That runs into a longer, dotted eighth-note delay, then a lowpass filter, bit-crusher, and highpass filter. Note that I also placed a limiter at the end of the chain, set to defaults. This is essential if you're working with effects like distortion and delays with lots of feedback, as they tend to jack your levels way up.





Step 3.

Using Live's macro assignments—or Reason's Combinator rotary knobs—select the synth and effect parameters that create the biggest impact on your sound. My assignments are: FM amount from oscillator 2, volume of the octave square, overdrive wet/dry, short delay mix plus feedback, long delay mix plus feedback, lowpass cutoff, highpass cutoff, and bit-crush amount.

Step 4.

The last step is the most fun: Record your riff and turn those knobs! Always keep your DAW in record during this process, because magic happens when you least expect it and it's crucial to capture that. Once you have a solid take, you can always go back and edit. The end result will be a lead that twists, turns, grows, shrinks, and keeps the dance floor engaged with your track. ♫

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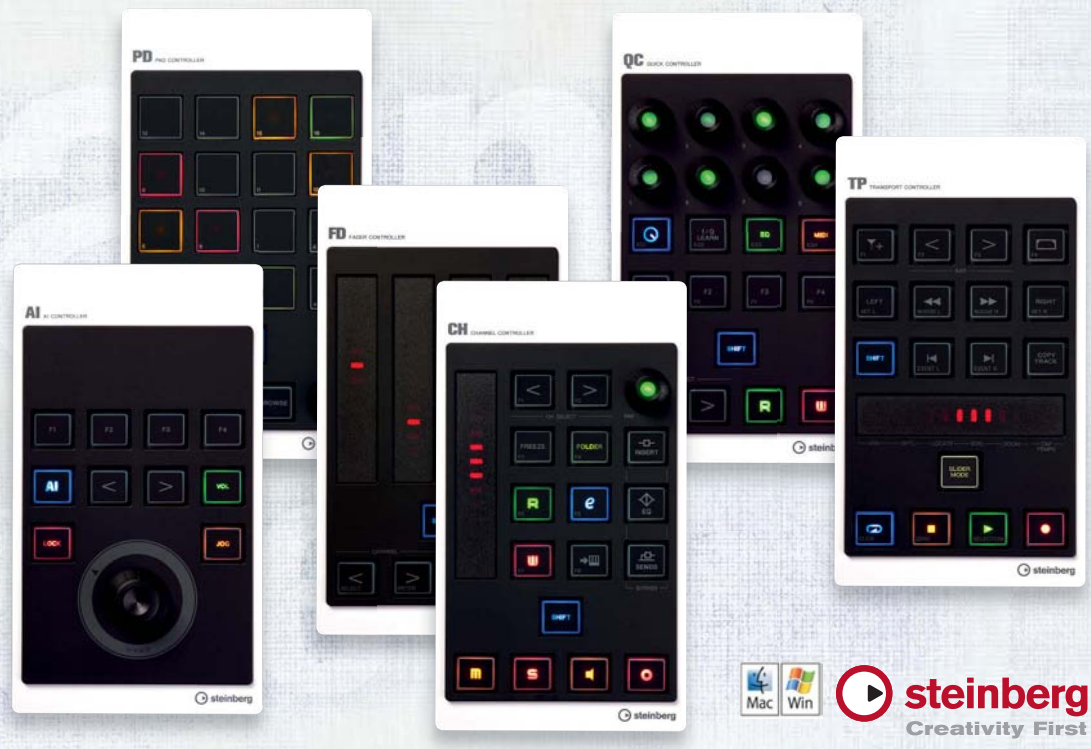

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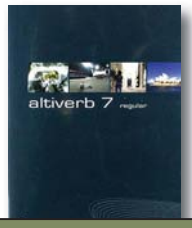
CONVOLUTION REVERB

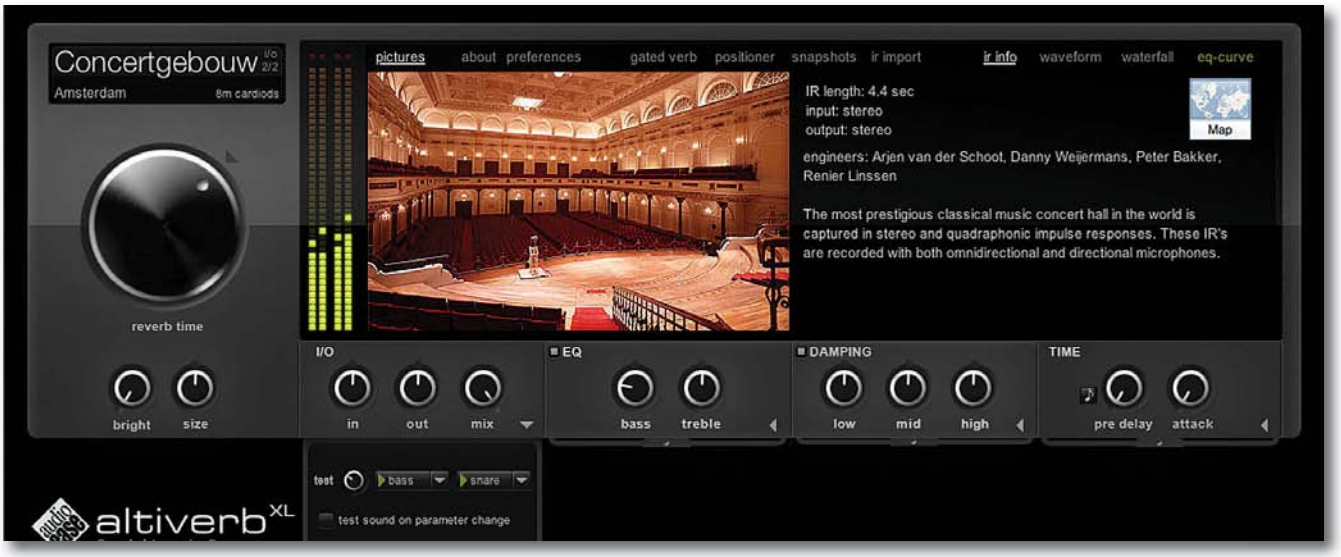
The Best Virtual Acoustic Spaces for Media Composers

BY JOHN KROGH

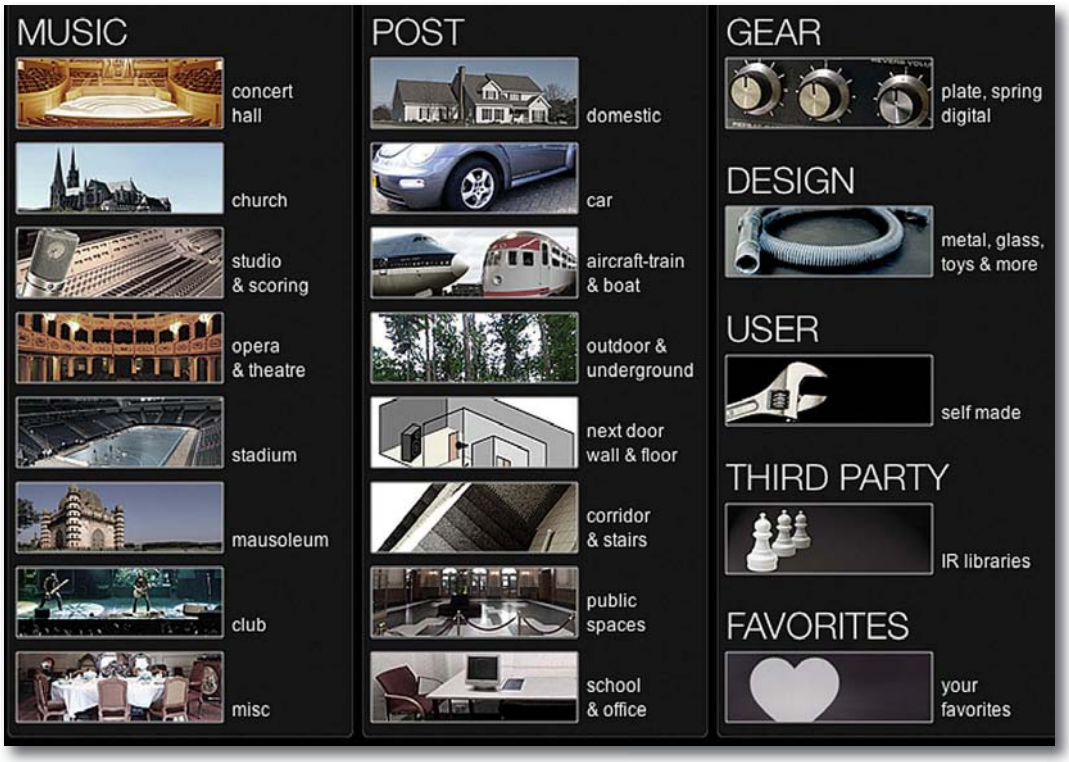
IF YOU COMPOSE MUSIC FOR MEDIA, YOU ALMOST CERTAINLY USE DIFFERENT SAMPLE LIBRARIES, MIXING instruments recorded in various studios and locations, all with the goal of a cohesive mix in which all your tracks sound as if they were recorded in the same place. It's no easy feat, and requires that you be equal parts musician and technician, which is especially challenging when deadlines loom. One of the critical pieces of software we rely on to create a realistic space—whether a virtual Hollywood scoring stage, world-class recording studio, or famous concert hall—is a convolution reverb loaded with expertly sampled acoustic spaces. That's exactly what these three plug-ins offer, each with their own unique strengths.



	Audio Ease ALTIVERB 7	EastWest QUANTUM LEAP SPACES	Vienna Symphonic Library VIENNA SUITE
PROS	Large, diverse IR collection. Highly programmable. Can load user IRs. New IRs constantly added for free. Browser makes file management and auditioning intuitive.	Oozes vibe and sounds gorgeous. Has IRs from the same hall where EW Symphonic Orchestra was sampled. Easy to find great sounds with no fiddling.	Best of both worlds: IRs for early reflections and algorithmic tails with modulation. Can load user IRs. Good selection of spaces. Useful EQ and dynamics. One purchase buys three licenses.
CONS	IR collection is so big that finding what you're after in the heat of writing can be a challenge. Some tonal shaping required to get good sound.	Limited programmability. Can't add your own IRs. Mostly large-sounding spaces; not as many smaller rooms.	Limited selection of IRs compared to other two reverbs. No spatial positioning tools onboard.
Price (list | street)	$595 | $529	$299 (no difference)	$570 | $540
Website	audioease.com	soundsonline.com	viennasuite.com



Convolution reverb can sample famous acoustic environments and put your sound in them, and Altiverb was one of the first.



Concert halls and churches are only the beginning of Altiverb's seemingly bottomless well of virtual spaces.

The Players

Now at Version 7, **Altiverb** (AV) from Audio Ease is a mature platform that offers a staggering variety of sampled acoustic spaces. AV's library of impulse responses (IRs) weighs in at 3.7GB, and you can add your own IRs, including those from third-party developers (for example, I'm a big fan of Samplicity's Lexicon 960 in AV). AV comes in two flavors: Regular and XL. Regular is a native stereo version, and XL adds support for Pro Tools TDM and 5.1 surround input. Audio Ease is known for continually capturing new IRs and making them available for free. These run the gamut from studios and cathedrals to claustrophobic spaces, vehicles, funky vintage gear, and more.

Quantum Leap Spaces (QLS) from East-West is a relative newcomer but has already gained popularity among musicians for its collection of larger spaces—particularly its halls, cathedrals, and scoring stages. QLS features 42 IRs and weighs in at a relatively svelte 750MB, proving that quality over quantity is a winning formula. While you can't add

Convolution is one of the two reverb plug-ins in Vienna's Suite collection.

your own IRs to QLS, what's included is of extremely high quality. The IRs in QLS were recorded using a combination of high-end preamps and microphones known for their color and character. As a result, the IRs have an obvious musical vibe that works well with a variety of instrumental source material.

A bit out of the norm, QLS is designed to be used as an insert effect rather than on an aux send, although you can do either. In fact, all of the presets are carefully programmed with dry and wet levels, and there's no single wet/dry control. Conventional wisdom says that applying reverb via inserts would quickly eat up CPU resources, but QLS is surprisingly CPU-efficient, and a more modern workflow is to sub-group instrument families on dedicated aux channels, each with their own reverb. I suspect that is what EastWest had in mind when developing QLS.

Vienna Symphonic Library's **Vienna Suite** (Suite) is a collection of ten plug-ins, including utilitarian dynamics and EQ and two reverbs: Convolution and Hybrid. The latter uses IRs for early reflections, and algorithms (synthetic "regular" reverb) for the tails. Convolution includes 35 IRs and Hybrid has another 46, with a total footprint of 49MB. Both let you add your own IRs, and VSL offers add-on IRs from Numerical Sound and Inspired Acoustics. Similar to QLS, Suite features a smaller set of IRs primarily tailored for cinematic work, with a decent selection of halls, scoring stages, plates, and rooms. Both plug-ins feature useful tone-shaping controls—especially Hybrid, with separate tone, time, and mix parameters for the early reflections and tails. That makes a wide range of sound possible beyond purely "natural" rooms.

All reverbs in this roundup support 32- and 64-bit processing, require a dongle for licensing, and come in the major Mac and Windows plug-in formats. Suite, however, provides three software licenses, letting you run it on a main host machine plus two other computers. That's a big advantage, especially if you have a multi-computer studio with host software such as Vienna Ensemble Pro (reviewed Apr. '12) or Plogue Bidule.

All the reverbs feature true stereo operation, which requires more CPU horsepower than mono-to-stereo. The result is a more realistic sense of the sound being in the actual space.

IR Sample Content

AV's library of sampled spaces is massive by comparison to any other convolution reverb, and it goes well beyond large halls and cathedrals to include world-class recording studios, plate reverbs, digital effects, and a large number of post-production-oriented IRs taken from offices, trains, planes, and other public areas. For me, AV is a one-stop shop where I can find just about everything. Another of AV's strengths is that many spaces are sampled from multiple perspectives, so you can choose from a more up-front or pushed-back sound.

Hybrid uses sampling for early reflections and algorithms for reverb tails, combining the best of convolution (realism) and traditional reverb (tweakability).

While QLS doesn't offer nearly that number of IRs, what's included is top-notch, and gives composers plenty of variety in terms of halls and scoring stages. QLS also offers multiple perspectives for many of its sampled spaces—EastWest even went so far as to sample separate perspectives of their generically named "So. Cal Orchestra Hall" for each instrument family in the orchestra. Even more impressive is that the IRs were apparently created with different musical applications in mind. For example, there are presets for "pop brass," "rock drums/guitar," "piano hall," "strings hall," "taiko hall," and more.

A nod goes to all of the plug-ins for the way in which presets are organized. AV has a full-featured browser that lets you search for presets by application and type (*e.g.*, music creation versus post-production) and even offers a "Similar" function that finds IRs that are similar-sounding to the current preset. In practice that works remarkably well and helps narrow the audition and search process. QLS presents its IR collection in several ways, allowing you to search by room type (Hall, Stage, etc.) or by application (Orchestral Brass, Vocal Ambient, etc.). Similarly, presets in Hybrid are organized by room type, and all presets include helpful suggestions for different applications, such as "Class hall with pronounced mids" and "Signature stage with a distinct reflection and buildup; very good for strings."

EastWest Quantum Leap Spaces has the simplest, most musician-friendly interface—and exceedingly musical sound quality.

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Sound Quality

It has to be said: Quantum Leap Spaces sounds gorgeous. Sources seem to blend more naturally with the sampled spaces and, not surprisingly given EastWest's pedigree, there's a definite Hollywood soundtrack character to many of the presets that I didn't find with the other reverbs. While it wouldn't be my choice for indie productions or to add just a hint of room to otherwise bone-dry overdubs, QLS is definitely at the top of my list when I'm going for an expensive, polished, big-score sound.

Ease of Use

QLS sports a very simplified user interface with controls for wet and dry levels, basic tonal shaping, and pre-delay, so there's not much you can do beyond "load and go." That's good news for technophobes, but frustrating if you prefer deeper programmability. Speaking of which . . .

Programmability

Altiverb and Suite let you craft, control, and shape many aspects of the sound, which, as an admitted tweakhead, I prefer. Mixing as I go is part of my creative process, and I like to dial in exactly the sound I'm after. Very often I find myself adjusting the reverb and source sounds as I write in order to mask problems with a particular instrument, blend sounds from different libraries into the same space, or move an instrument within the mix. In this regard, AV and Suite give me the kind of control I'm used to.

Bang for Buck

Considering that Vienna Suite includes a set of useful and usable EQ and dynamics plug-ins—plus two reverbs with a small-yet-natural-sounding set of IRs and three software licenses so you can deploy the effects across several computers—Suite clearly gives you the most *stuff* for the money. None of it is filler—everything in Suite can hold its own next to some of the bigger, more well known plug-in developers. I wouldn't characterize Suite's EQs and dynamics as vibey or colorful, but for clean and neutral results, they're very capable.

Conclusions

If your music requires convolution reverb at all, it's hard to go wrong with any of the three reverbs we've covered here. Maybe you like to shape and tweak your sounds, in which case you might like more parameter control. On the other hand, maybe having too many knobs gives you option anxiety. Regardless of where you're at on the muso-techno continuum, each of the reverbs featured here is worthy of serious consideration and would be an asset to your music-making setup. ♫

SOUNDCLOUD

Hear audio examples of the same source material put through each of the reverbs in this roundup.

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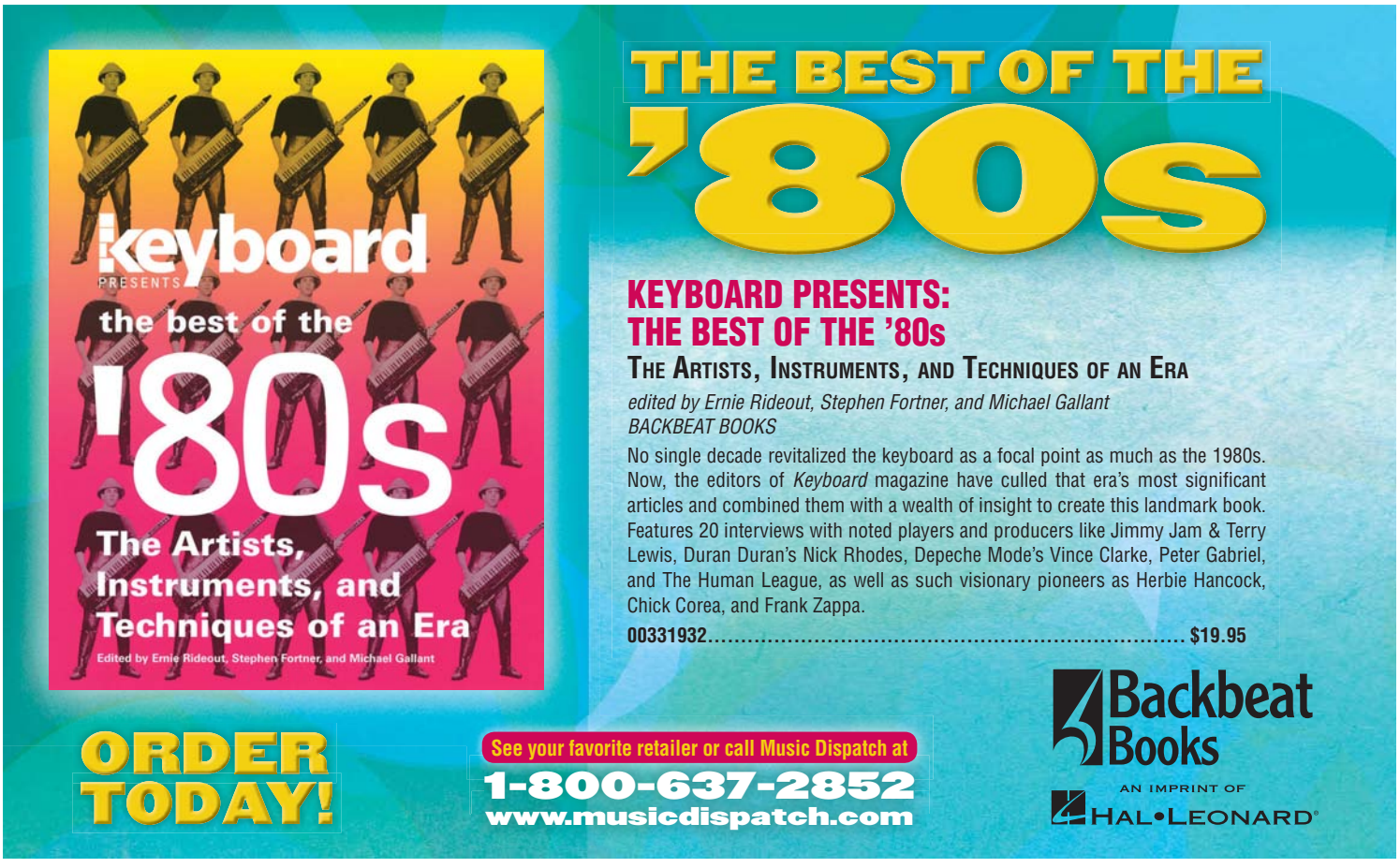
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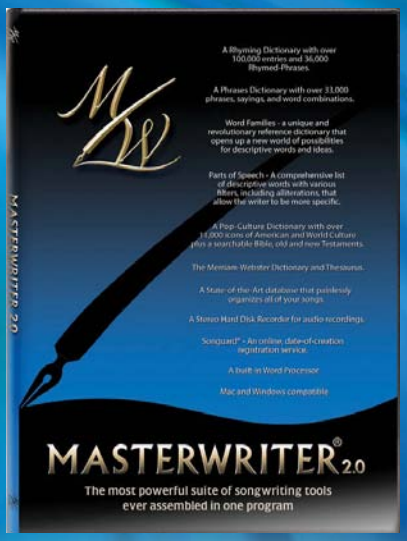
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U-HE Diva

BY JIM AIKIN

THIRTY YEARS AGO, ANALOG SYNTHESIZERS (AND THERE WASN'T ANY OTHER kind) were accused of sounding cold and sterile. Today they're sought after for their warmth. Go figure. If I had plenty of money and a spare room, I'd buy a few monster analog synths. As it is, I have several excellent virtual analog plug-ins to choose from. But nothing I've heard yet nails the analog sound as solidly as U-he Diva. This soft synth is so hot, it'll raise blisters.

Snap Judgment

PROS Extremely authentic analog sound and features. Modeled on vintage hardware instruments. Hundreds of great presets.

CONS High CPU usage. No arpeggiator.

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Key Info

POLYPHONY
Up to 16 voices, CPU-dependent.

SYNTHESIS TYPE Analog modeling.

FORMATS VST or AU plug-in. (Pro Tools version planned.)

SYSTEM REQUIREMENTS *Mac:* OS 10.5 or later. *PC:* Windows XP or later. *Both:* Dual-core Intel or AMD (but not PowerPC) processor, 2GHz or faster.

Overview

Diva's lineup of modules is flawlessly classic. Even so, there's a lot more here than meets the eye. Across the top (the black panel) are four mega-modules. The first houses the oscillators, the second a highpass filter, the third the main resonant filter, and the fourth a pair of attack-decay-sustain-release envelopes. The lower area (the red panel) houses two LFOs, two effect processors, extra modulation routings, and voice processing options.

Each of the mega-modules offers three or four different choices. For example, in the oscillator panel you can choose the Triple VCO, Dual VCO, DCO, or Dual VCO Eco (less CPU usage) mega-module. The Triple VCO is reminiscent of, though certainly not identical to, the oscillator layout on the Minimoog. Other modules seem to be based on early Roland synths or the Korg MS-20. I'm told the developers listened to hardware instruments in the studio while writing code.

Diva has no arpeggiator—an odd omission for an analog-emulation synth that does such a fine job of sounding authentic. The effects choices (chorus, phaser, plate reverb, stereo delay, and rotary speaker) aren't luxurious, but they're the right choices for a vintage sound. On the plus side, Diva has a rich set of controls for adding subtle analog instability to the sound, such as individual voice detuning and multiple "slop" controls—more on these later.

The user interface is clean and professional. Double-clicking any knob zeroes it, and right-clicking arms the MIDI Learn. By shift-clicking a knob, you can make fine adjustments, which are displayed numerically. In use, Diva was rock-solid: I didn't encounter a single glitch.

The patch browser occupies the whole panel by itself, and includes hundreds of mouth-watering presets. After saving your own patches, you can drag them into whatever category folder you like. Patches can be marked as favorites or junk, but I'll be using the favorites mark a lot more than the junk mark. Whether you're doing dance, hip-hop, new age, or fusion, you'll find plenty of leads, basses, and pads to get the creative juices flowing.

By now, you're probably realizing as I did that there are too many features to list, much less talk about how they sound, so we'll hit the high spots.

Oscillators

The Triple VCO has a Minimoog vibe, right down to the rocker switches, but the waveform selector, unlike the one on the Minimoog, is continuously variable from sawtooth and triangle through pulse. Oscillators 2 and/or 3 can be synced to oscillator 1, which itself can be an FM source to modulate 2 and 3. You can switch modulation on or off individually for the pitch and waveform, but all three oscillators will share the same source signals and modulation amounts, which is a limitation.

Modulating the waveform of the Triple VCO from triangle to saw produces a slight and very analog-sounding pitch instability. As the modulating signal speeds up, the pitch changes get larger. Though I'm a bit skeptical, I'm going to call this a feature.

The Dual VCO doesn't offer continuously variable waveforms, but it does have pulse width modulation and sync. Oscillator 1 can cross-modulate oscillator 2, with an input for the modulation amount.

The DCO module has a single oscillator with two waveform selectors (the two are mixed), a sub-oscillator with its own waveform, and a noise source. All of the oscillator modules have dual inputs for pitch modulation; in the Triple VCO these inputs can be switched on or off individually for the three oscillators.

Filters

According to the manual, some fancy signal processing is being employed to produce low-latency resonant filters. The difference is subtle, but I feel the filter tone is more "present" than in other modeled analog synths I've played. The filter modules are called Ladder, Cascade, Multimode, and Bite.

The Ladder filter is Moog-like, right down to calling the resonance knob "Emphasis." This filter will self-oscillate, and can be modulated at audio rate from oscillator 1 for rich, swirling sidebands. The Cascade filter has a clean/rough switch and a 12/24dB switch. The Multimode filter is similar, but replaces these two switches with a four-position switch for four-pole lowpass, two-pole lowpass, highpass, or bandpass.

At first I didn't hear anything special from the Bite filter, but it turns out this filter is sensitive to input level. Turning the oscillators' output knobs to a low level can give you some grungy, unstable tones that are very satisfying. I got some truly nasty tones by combining the Bite filter with the Triple VCO's feedback routing.

All the filters have three modulation inputs for cutoff frequency (two assignable and one hardwired to key number), plus modulation inputs for resonance and FM, the latter being in the lower panel.

Envelopes

The two envelope generators are individually selectable from three types: an analog-type ADSR, a similar digital ADSR, and a very Minimoog-style ADS (attack, decay, and sustain only) with an on/off release switch. All three have controls for velocity sensing and keyboard scaling. Velocity controls the envelope amount, not the attack and decay times, which are controlled by keyboard scaling.

The digital envelope has mysterious buttons labeled Q and C. According to the manual, the Q button quantizes the envelope output, producing a rougher sound. I just about couldn't hear the difference. The C button changes the envelope segments' shape, but again in such a subtle manner that I had trouble hearing it.

Modulation

By default, many of the modulation inputs on the upper panel come from envelope 2 and LFO 2. From a pop-up menu, however, you can select numerous other sources, such as MIDI pitch-bend, mod wheel, aftertouch, breath controller, or velocity; either of the LFOs or envelopes; or any of the processors in the Modifications panel.

These processors add a lot of versatility. With the lag processor, you can smooth out the edges of an LFO's square wave. The add processor lets you mix two modulation signals, albeit with no control over their individual depth. The quantizer produces a stepped output from a smooth input, with precise control over how far apart the steps will be.

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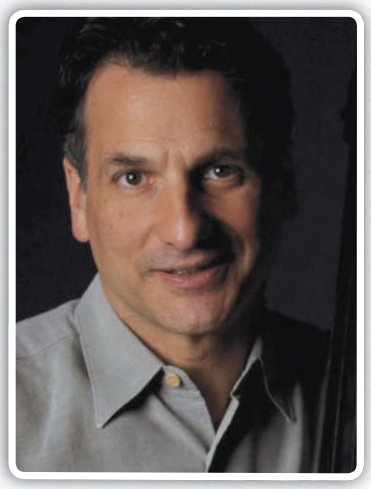

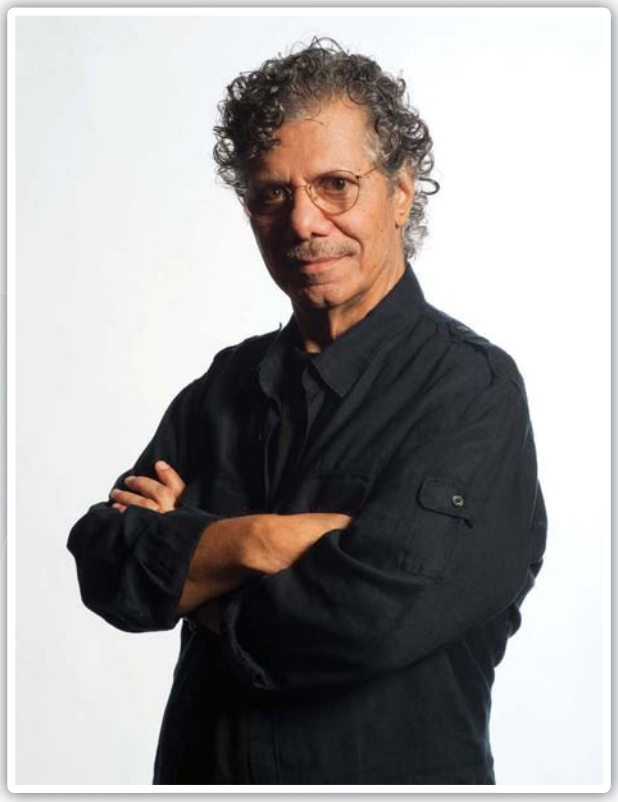

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An alternate view of Diva, showing the Dual VCO, Bite filter, envelope sliders, and the voice trim panel (lower center).

The LFOs aren't exactly vintage in design, though they can be pushed up into the audio range for weird clangorous effects. In addition to the standard waveforms, they'll do random stepped and random glide. You can sync them to various metric values, and modulate both the rate and the depth from various sources.

Also in the lower panel are eight supplemental modulation routings: inputs with trim pots for two oscillator parameters (FM and cross mod depth, noise and dual VCO mix), two filter parameters (resonance and FM amount), feedback depth, main volume (normally envelope 1, but can be set to gate), and volume and pan modulation.

Voice Trims and Global Parameters

In addition to the usual master parameters, Diva gives you some features that are less standard, such as separate glide times for oscillators 1 and 2. You can load a microtuning scale, stack and detune multiple voices, and choose low-, high-, or last-note priority. In duo mode, oscillator 2 tracks the highest keyboard note and oscillator 1 the lowest, a nice performance option borrowed, if memory serves, from the ARP 2600.

Diva is up to 16-note polyphonic (if you have a fast enough computer—I don't). Its voice trim section has eight columns of knobs for detuning the voices. (Voices 9–16 duplicate the settings for voices 1–8.) You can detune each oscillator in microscopic amounts. This very effectively simulates the sound of synths like the Prophet-5, which had individual analog circuits for each voice.

Adding similar offsets to cutoff, envelope, pulse width, and glide time would involve way too many knobs. Instead, you get four knobs—one for controlling the overall amount of "slop" for each of these things, together with a randomize button that invisibly juggles the offset amount for each voice.

The Drift knob has a very subtle but audible effect. Unlike detuning from voice to voice (and thus from one note to the next), this knob introduces a slow, tiny, random pitch drift while a note is sounding.

Along the bottom of the voice trim section is a row of knobs called Voice Map Modulators. These are a modulation source you can use anywhere. If you want rotating pitch offsets, for instance, you can route Voice Map to oscillator pitch. This setup effectively emulates some of the possibilities of early Oberheim synths.

Conclusions

I was a bit ho-hum about a soft synth with no wild-eyed digital features—until I started playing Diva. After that, I just about couldn't stop. An arpeggiator and a step sequencer would be welcome additions, and wouldn't break the vintage analog concept. Other than that, Diva has it all. If you're jonesing for analog, this synth will blow your doors wide open. ♫

Bottom Line

I can't believe it's not analog.

$179

u-he.com

SOUNDCLOUD

Original audio examples of Diva's virtual analog prowess.

keyboardmag.com/may2012

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ARTURIA
Oberheim SEM V

BY GEARY YELTON

THE FIRST SYNTH I OWNED WAS AN OBERHEIM TVS-1 FROM THE MID '70s. It housed a pair of monophonic Synthesizer Expander Modules (SEMs), giving it two complete and independent synthesizers as its voices. Because the TVS-1 had no memory, I had to manually dial up new patches on both modules to change sounds. A few years later I got an FVS-1—a large model with four SEMs and partial patch memory. I eventually sold it to buy my dream synth, an Oberheim Matrix-12. After I began using soft synths in the studio more often than hardware, I became frustrated that you could get accurate emulations of practically every classic synth *except* an Oberheim. Luckily, Arturia—best known for spot-on re-creations of classics such as the Sequential Prophet-5, Roland Jupiter-8, and Yamaha CS-80—recently launched SEM V, which emulates Oberheim's SEM-based instruments and goes far beyond.

Keyboard K KEYBUY AWARD

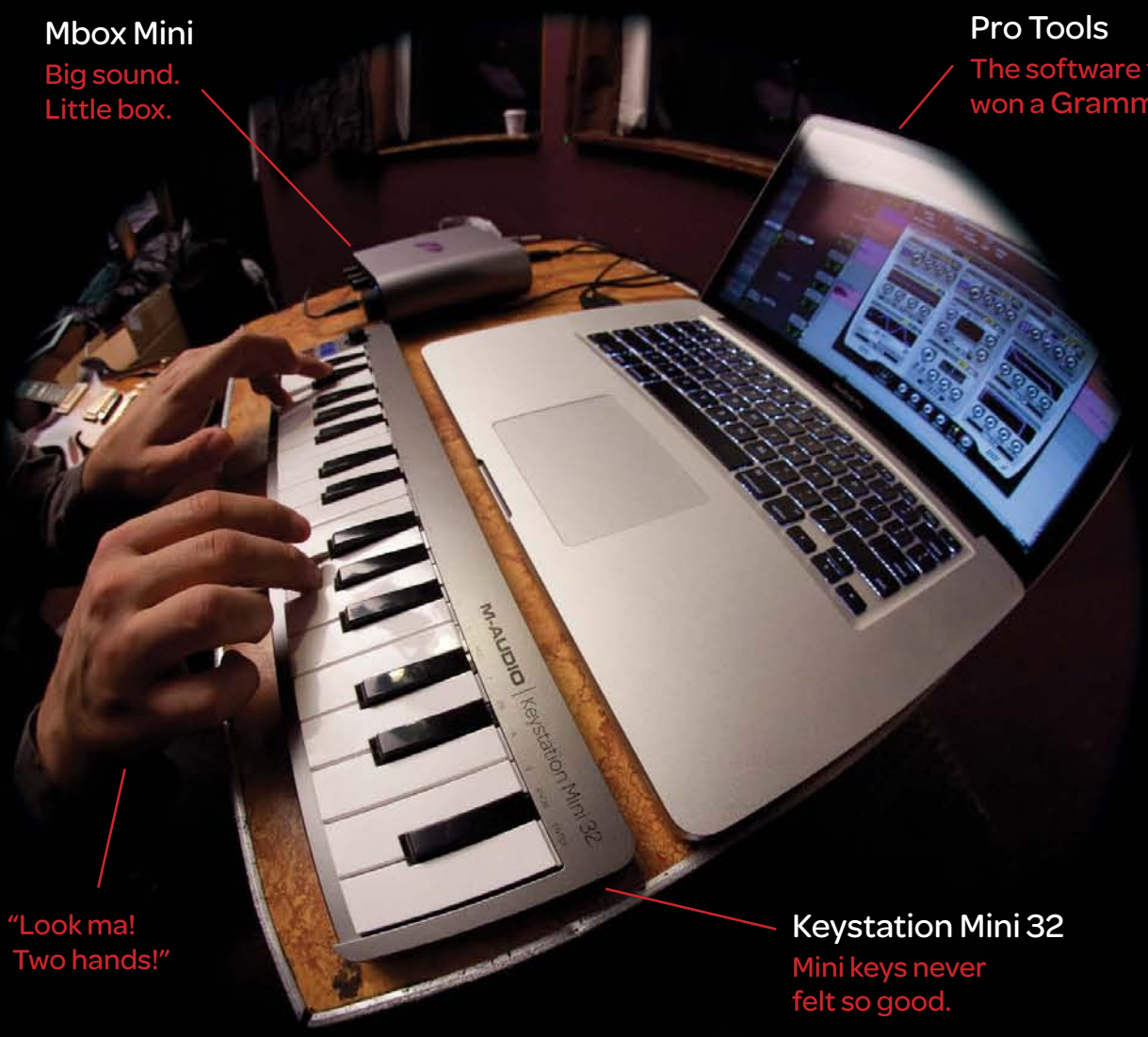
Snap Judgment

PROS Sounds like a real Oberheim SEM. Versatile sub-oscillator and second LFO. Unexpectedly deep and subtle programming capabilities.

CONS Portamento can only apply to all voices at once. CPU-intensive.

Synth Engine

Tom Oberheim introduced the SEM in 1974 as a monophonic expander for existing synths such as the Minimoog and ARP 2600. Both the original SEM and the new models that appeared in 2010 are freestanding boxes containing two voltage-controlled oscillators (VCOs), a multimode filter (VCF), a sine wave LFO, and two envelope generators. The oscillators can be synced and generate sawtooth and variable-width pulse waves. The two-pole filter comes in four flavors: lowpass, highpass, bandpass, and notch. The envelopes



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have attack, decay, and sustain knobs and modulate the amplifier and filter frequency. With only three knobs to control each ADSR envelope, the initial decay and the final release times are identical, and a single knob controls both parameters.

SEM V's architecture and front-panel layout are faithful to their hardware counterparts, but with significant additions. A second LFO offers sine, sawtooth, or square waves, and you can sync it to your host software's tempo, as well as determine how quickly its effect fades in. A versatile sub-oscillator generates the same three waveforms, either one or two octaves below the frequency of VCO 1. I was pleased to find you can apply pulse-width modulation to the sub-oscillator's square wave. You also get a white noise generator and some effects (overdrive, chorus, and delay) as well as a basic arpeggiator that spans up to four octaves. Clicking the Open button at the top of the window reveals Modulations and Effects sections above the front-panel interface.

One of my favorite tricks with my old TVS-1 was to play it monophonically with portamento turned on for only one SEM. However, in SEM V, portamento is applied to all voices.

Extended Programming

On a vintage Oberheim four- or eight-voice synth, you could either layer all the voices at once (unison mode), trigger them one after the other (continuous mode), retrigger the same voices (reset mode), or assign specific SEMs to either half of the keyboard (split mode). SEM V duplicates continuous mode when played either polyphonically or monophonically. Arturia says there's no unison at this time, but SEM V sounds so fat in mono mode with the sub-oscillator on that I could have sworn there was.

Because a separate SEM generates each voice in a vintage Obie, every voice differs slightly from the others, even when parameter values are identical. This partially accounts for its huge sound, and SEM V's unique "8-Voice Programmer" section mimics this by letting you offset parameters for each of eight simultaneous timbres. The Programmer displays six modulation routings, each with a pop-up menu for selecting from 24 parameters that include VCO tuning, VCF mode, LFO rate, and the timing of individual envelope segments. To their right is a window that resembles a step sequencer, with graphical blocks you can resize, representing parameter values for each voice.

Although SEM V lacks a sequencer, you can duplicate one by setting one of the Programmer's modulation routings to affect oscillator pitch, selecting a pitch for each of the eight voices, and turning the arpeggiator on so that it retriggers each note.

SEM V's Keyboard Follow function is more sophisticated than your average keyboard tracking. Like the Programmer, it can modulate six simultaneous parameters of your choosing. Each of the six assignments has its own response curve controlling how the affected parameter responds to note position. For each curve, you can define as many as 32 breakpoints and specify whether the slopes between breakpoints are linear or exponential. The Keyboard Follow section is where you can make your SEM V patches stand apart from those of other synths.

Another page reveals SEM V's Modulation Matrix, which lets you define sources, amounts, and destinations for up to eight mod routings. You can choose from eight sources—including either of the envelope generators—and 26 destinations that include vibrato and filter resonance.

The 8-Voice Programmer mimics the subtle variations between SEMs in a vintage Oberheim by letting you offset parameters of your choosing.

Key Info

SYNTHESIS TYPE
Analog modeling.

POLYPHONY Up to 32 voices, user-adjustable.

FORMATS Mac or Windows. AU (Mac only), RTAS, VST, standalone.

COPY PROTECTION eLicenser Control Center software—Internet connection required for initial authorization.

Bottom Line

If you've always wanted the legendary and nearly unattainable Oberheim Eight-Voice, this is the soft synth for you.

$249 list | $199 street
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Batches of Patches

SEM V is loaded with hundreds of outstanding patches, many created by top synthesists such as Ian Boddy, Drew Neumann, and Erik Norlander. Banks are further divided into types such as Bass, Percussive, Sequence, and so on. Although bread-and-butter-type sounds aren't especially plentiful, many of them are terrific.

Most of the factory presets are designed to show off SEM V's capabilities, and they can get you on the road to creating your own patches. Your best strategy for learning to roll your own may be to check out the Modulations settings. You can pick up a few tricks just by analyzing what Arturia's sound designers have done in that section.

Conclusions

I'm impressed by how well SEM V captures the sound of Oberheim hardware, and its extended features make it more flexible than its namesake. I commend Arturia on reproducing the SEM's filter characteristics. SEM V is one of the most genuinely analog-sounding soft synths yet. If you love the sound of vintage synths, SEM V should be part of your virtual rig. ♫

SOUNDCLOUD

Audio examples of standout SEM V patches.

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CREATE DIGITAL MUSIC / REFLEX AUDIO

MeeBlip SE

BY FRANCIS PRÈVE

PETER KIRN OF CREATEDIGITALMUSIC.COM (AND A REGULAR *Keyboard* contributor) and James Grahame of Reflex Audio have unleashed a full-fledged monophonic synth called the MeeBlip. Based on the same processor as the Arduino (a complete microcontroller on a circuit board that's won the hearts and minds of the DIY music community), it's totally hackable and able to run custom programming. This open-source approach has made the MeeBlip project an ongoing exercise in refinement since 2010. The newest version, MeeBlip SE, is ready for prime time—even if you don't want any aspect of your musical life to involve holding a soldering iron or writing code.

Keyboard K KEYBUY AWARD

Snap Judgment

PROS Unique blend of analog-style subtractive synthesis and digital grunge. All parameters respond to MIDI CC control. Very customizable.

CONS No USB—five-pin MIDI input only.

The MeeBlip Voice

The MeeBlip offers a tasty blend of analog-style subtractive synthesis and digital grunge. (Full disclosure: I helped out a bit with suggesting features for the MeeBlip SE, but have zero stake in the company or sales.) What makes the MeeBlip cool—and a part of my synth arsenal—is that it doesn't sound like anything else I own.

Kirn and Grahame have made some design decisions that give MeeBlip a lot of sonic personality by limiting what's possible. Each of its two oscillators has its own set of features. Oscillator A can generate sawtooth waves, pulse waves (with switchable LFO modulation), or noise. Oscillator B can generate a square, a triangle, or be switched off. In an interesting caveat, you can detune the oscillators by up to a fifth or so in either direction, but you can't mix their relative levels. Oscillator B can be transposed up or down with its octave switch, but oscillator A cannot. Some users might complain about such things, but considering all the built-in soft synths that come with DAWs these days, I'm unconcerned. These decisions are part and parcel of the MeeBlip's sound.

Besides, it's the features you *won't* find elsewhere that give this synth some serious digital cred: stuff like switchable anti-aliasing, digital distortion mode, and oscillator FM. Because

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of those features, the MeeBlip is capable of binary grime that dubstep and IDM producers will absolutely love.

The filter can be switched between resonant lowpass or non-resonant highpass modes. At extreme resonance settings, the MeeBlip is surprisingly good at doing juicy Roland TB-303-style squelches.

The envelopes are a trifle quirky, as both are attack-decay affairs that tie the release time to the decay time—if it's good enough for the original Minimoog, it's good enough for the MeeBlip! There's no sustain level for either, but there's a full sustain switch for the amp envelope and if you think about it, the overall cutoff frequency serves much the same purpose as sustain level would for the filter. Again, it's all about personality for this synth.

LFO modulation can be routed to either oscillator pitch or filter cutoff. Triangle and square waves are available, and a "random" switch adds sample-and-hold effects. While the LFO rates aren't MIDI clocked, they can easily reach into the audio spectrum for FM effects that take the grunge factor up another notch.

While the MeeBlip can store up to 16 presets, the process is a little quirky. First you hit the save or load button, then you toggle one of the MeeBlip's 16 programming switches. A similar system is used to select the MIDI receiving channel. Speaking of MIDI, the MeeBlip responds to CC information with considerable aplomb. Every knob and switch has its own dedicated control number, so you can whip up crazy morphing automation effects with minimal effort.

Conclusions

If you're looking purely for a convincing analog emulation, there are some lovely soft synths that will do the trick. On the other hand, if you want a truly unique digital synth that can deliver grit, grunge, and grime—while sporting a set of features familiar to keyboard players—the MeeBlip SE truly deserves a closer look. Whether you roll up your sleeves and assemble the $129 kit or spend the extra 20 bucks for a ready-to-play unit, the MeeBlip is a terrific value and a total Key Buy. ♫

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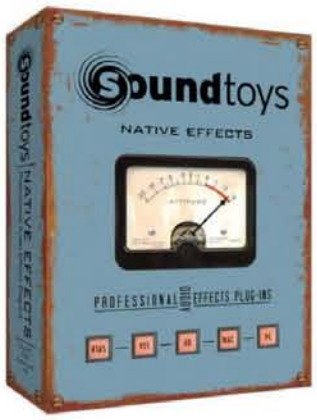

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MOOG MUSIC Animoog

BY FRANCIS PRÈVE

LET'S GET THE MOST IMPORTANT QUESTION OUT OF THE WAY. DOES IT SOUND like a Moog? Yes—Animoog is quite possibly the warmest iPad synth I've heard yet. The designers have done a brilliant job of capturing that creamy-yet-aggressive vibe that defines the Moog sound, but there's so much more to this app than that.

As its name implies, Animoog specializes in animation. You can certainly play it as a straightforward lead synth, with static saw, pulse, square, and triangle waves running into its Moog-flavored multimode filter. There's a tempo-syncable LFO and three envelopes: filter, volume, and an extra mod ADSR. Via the Unison parameter, you can create sounds with up to four oscillators, detuned narrowly for fatness or widely for chords. There's even a cool oscilloscope that shows your ever-changing waveform as you work. This is a great way for beginners to get a handle on analog synthesis, and I'm going to use it in my sound design classes.

Animoog's X/Y pad delivers powerful performance possibilities. The vertical axis is divided into eight regions, each of which can have its own assigned timbre, letting you morph the sound in ways reminiscent of Native Instruments Massive or a PPG Wave. The results range from simple square-pulse-saw morphing to nasty stuff that's extremely well suited to electro and dubstep.

Either axis can be assigned to useful parameters like cutoff, resonance, volume, detuning, drive, and several animation-specific destinations that rely on Animoog's Orbit and Path functions. Which brings us to Animoog's most unique feature: The ability to automate the X/Y position (where your finger would be) via an additional LFO.

The Orbit section uses three parameters—rate, X amount, and Y amount—to create a circular automation whose center you can drag around the pad manually. This is fantastic for evolving and rhythmic effects. Things get more interesting with the Path controls. They let you automate the motion of the X/Y cursor along a definable set of coordinates.

Sound complicated? It's not, though in conjunction with the synthesis tools, the musical results can be mind-bogglingly complex. Animoog also includes distortion, bit-crushing, and delay, and can record your performances as audio files for cutting/pasting into other apps or exporting to your desktop.

If you're an iPadder fiending for the Moog experience, Animoog is your gateway drug. Just be careful, because it's so cool, there's a good chance you'll get a hankering for the real thing. ♫

Snap Judgment

PROS Compelling emulation of the Moog vibe. Tons of performance features and programmability. Morphing and Orbit automation are a treasure trove of evolving and rhythmic sounds.

CONS None significant.

BOTTOM LINE One of the best iPad synths available.

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1. E-mu modular.
2. Roland System 700.
3. Roland System 100M.
4. ARP Odyssey.
5. Oberheim SEM-based synth.
6. Synton Syrinx.
7. Minimoog D.
8. Korg MS-20.
9. Korg MS-50.
10. Oberheim Xpander.
11. Moog Source.
12. Sequential Circuits Pro-One.
13. Roland SH-1.
14. MiniKorg 700.
15. MicroKorg.
16. Roland Juno-60.
17. Casio CZ-101.
18. Roland Juno-106.

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